Roland®

V-Card for V-Synth XT

VC-1 D-50

Owner's Manual

The V-Synth XT comes with the VC-1 and VC-2 titles from Roland's "V-Card" software series preinstalled. Without having to cycle power to the unit, you can simply press a single switch to transform the V-Synth XT into a completely different product.

VC-1 "D-50" transforms the V-Synth XT into a sound module that's equivalent to the Roland D-50 (a classic digital synthesizer that was released in 1987). Not just the preset patches, but every bit of functionality has been faithfully reproduced, giving you that distinctive D-50 sound with the stability of modern hardware.

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V-Card for V-Synth XT

VC-1 D-50

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Introduction

Main Features

Perfect Simulation of the D-50's Tones!

The VC-1 comes complete with all 64 of the D-50's preset patches, including the famous preset tones "**Fantasia**" and "**Digital Native Dance**." It also is programmed with the D-50/D-550 sound libraries **PN-D50-01–04** (with 256 patches). Since it naturally handles **MIDI bulk dumps**, you can use the VC-1 to create your own original tunes exactly as you would with your D-50. Of course, this gives you a perfect simulation of the D-50's tones, from the sound generator algorithms to editing of the parameters! It even reproduces the subtle nuances obtained when playing the instrument.

In addition, it also comes with an additional 64 new patches, which use waves (28 types) that are so large that the original D-50 would have been technologically incapable of containing them.)

Editing and Performances That Surpass the Original!

All sound generator parameters are assignable to the V-Synth XT's full complement of editing controls. Parameters can also be edited with the touch panel, allowing you to almost instantly turn your creative inspirations (no matter how fleeting) into sounds you can use. Whether the fun of creating sounds or pleasure of performing, this far outdoes the original.

Pro Spec Legacy Synthesizer!

Internal processing upgraded with the latest technology vastly improves the response and dynamic range from the time you press the keys to the moment the sounds are played. The V-Synth XT hardware is used as the means of outputting sounds, which means it's also compatible with digital outputs (optical/coaxial). This gives you a **legacy synthesizer with professional specs** good enough for the latest recording environments.

What is the digital synthesizer: D-50?

The **D-50**, released in 1987, was Roland's first **fully digital synthesizer**. Equipped with an **LA** (Linear Arithmetic Synthesis) format sound generator that combined PCM and subtractive synthesis, it opened the door to countless new sounds for levels of creativity surpassing anything up to that point. The D-50 is a renowned, historically significant synthesizer that Roland, the company that laid the foundation for digital synthesizers, is proud to have created.

The **D-550**, also released in 1987, shrank the D-50's powerful synthesizer engine into a mere two rack spaces.

Now, more than fifteen years after it came on the scene, the D-50 continues to be used by creative artists around the world. There are numerous sound libraries stocked with many original patches. In the course of time, however, keyboards and buttons age and wear out. It looked like the day would come when the D-50's sounds would no longer be heard.

In taking up the challenge of realizing new possibilities for the synthesizer, Roland has created a revolution in technology. At the same time, we want you to continue to using your treasured D-50 with peace of mind. Hence, the **VC-1**, which transforms your V-Synth XT into a D-50, not only sweeps away any worries about your D-50 growing old, but also offers new potential that goes beyond the original instrument.

We hope that you will discover and enjoy the unrealized potential that the D-50 still offers. And if you have never played the D-50, you definitely need to check out its vintage sounds.

Panel Descriptions

When using the **VC-1**, the actual functions of the V-Synth XT's buttons and knobs may not correspond to the functions ascribed to these controls on the V-Synth XT's panel. Here is a description of the names and functions in each section of the V-Synth XT when it is used with the VC-1. Please read this material together with "Panel Descriptions" in the V-Synth XT Owner's Manual.

Front Panel

1 VOLUME knob

Adjusts the overall volume that is output MAIN OUT jacks and PHONES jack. (p. 11)

2 V-CARD button

Starts up "VC-1" (p. 11). Also used to switch among the software in the V-CARD series, "VC-1," "VC-2," and "V-Synth."

3 PREVIEW button

By pressing the PREVIEW button you can audition (preview) the current patch.

4 USB Connector

You can connect it to your personal computer to send or receive MIDI messages.

5 PHONES Jack

This is the jack for connecting headphones (sold separately). (p. 11)

6 NUMBER KEY

Here you can recall patches.

Display	Function
[NUMBER] (1–8)	These buttons let you select patches.
[BANK-], [BANK+]	You can change the Patch bank.

7 LCD CONTRAST Knob

Adjusts the display contrast.

8 Display

This displays information regarding the operation you are performing.

* *The explanations in this manual include illustrations that depict what should typically be shown by the display. Note, however, that your unit may incorporate a newer, enhanced version of the system (e.g., includes newer sounds), so what you actually see in the display may not always match what appears in the manual.*

9 E1–E8 knobs

These can be assigned a variety of the D-50's different functions, allowing you to change the tone in real time. (p. 16)

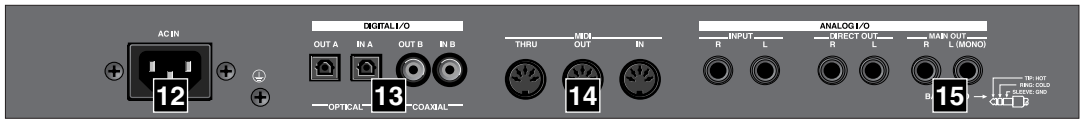
10 Dial and buttons

Display	Function
VALUE Dial	This is used to modify values. If you hold down [SHIFT] as you turn the VALUE dial, the value will change in greater increments.
[DEC/-], [INC/+]	This is used to modify values. If you keep on holding down one button while pressing the other, the value change accelerates. If you press one of these buttons while holding down [SHIFT], the value will change in bigger increments. (p. 44)
[▲], [▼], [◀], [▶]	Moves the cursor location up/down/left/right. (p. 44)
[MODE]	Opens the Mode Menu window.
[SHIFT]	This button is used in conjunction with other buttons to execute various functions.
[EXIT]	Return to the PATCH TOP screen, or close the currently open window. In some screens, this causes the currently executing function to be aborted.

11 POWER Switch

Press to turn the power on/off. (p. 11)

Rear Panel



12 AC Inlet

Connect the included power cord to this inlet.

13 DIGITAL AUDIO INTERFACE Connector

These connectors input/output a digital audio signal (stereo; conforming to IEC60958). The output signal is identical to the signal that is output from the MAIN OUT jacks.

* ***IEC60958*** *is a digital interface format used for consumer digital audio devices.*

14 MIDI Connectors (IN, OUT, THRU)

Connect external MIDI devices here. Use MIDI cables (sold separately) to make connections.

Display	Functions
IN	Receives MIDI messages from an external device.
OUT	Transmits MIDI messages to an external device.

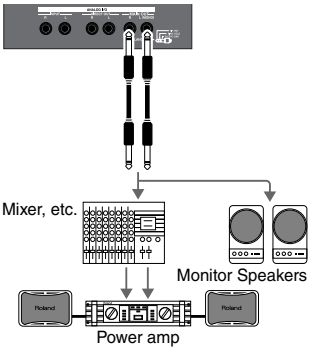
15 MAIN OUT Jacks (L (MONO), R)

These jacks output the audio signal to the connected mixer/amplifier system in stereo. For mono output, use the L jack. (p. 11)

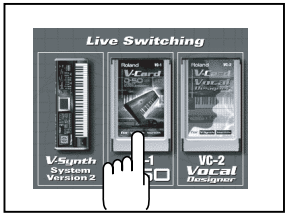
Try Out the Sounds

Turning On the Power

To prevent malfunction and/or damage to speakers or other devices, always turn down the volume, and turn off the power on all devices before making any connections.

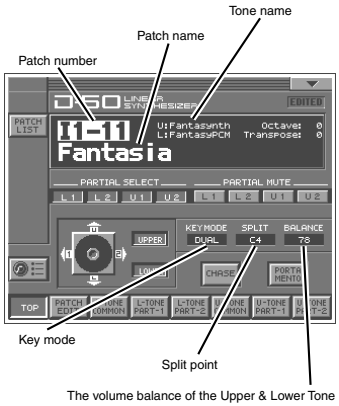


1. Before hooking anything up, make sure that the power on all of your gear is turned OFF.
2. Connect the V-Synth XT to your amp/speaker system.
3. Turn on the V-Synth XT's Power switch.
4. Turn on the power for any connected amplifiers or speakers.
5. After the V-Synth XT has started up, press the [V-CARD] button and touch "D-50" (VC-1) in the screen that appears. The VC-1 Startup screen appears.



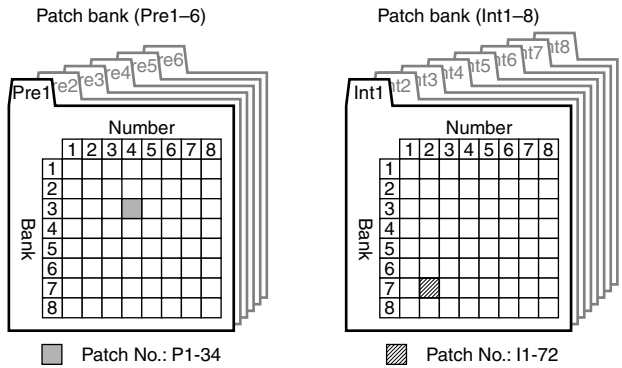
* *When you turn on the power, the V-Card that was most recently started will start up.*

6. Wait for the VC-1 to start up. When it has started up normally, a screen like the following will appear. The display shows the selected Patch.



Selecting Patches and Playing Sounds

The VC-1 comes with a wide range of onboard sounds, including single tones called **patches**.
A Patch is represented by a **Patch Bank** (Pre1–6, Int1–8), a **Bank** (1–8) and a **Number** (1–8).



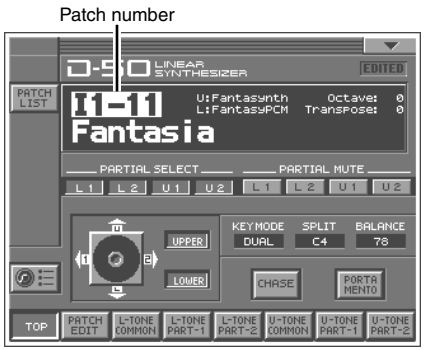
Patch Banks	Included patches	Overwrite	Remarks
Pre1	D-50	No	Original D-50 preset patches
Pre2	VC-1	No	Newly added patches VC-1
Pre3	PN-D50-01	No	D-50/D-550 sound library
Pre4	PN-D50-02	No	D-50/D-550 sound library
Pre5	PN-D50-03	No	D-50/D-550 sound library
Pre6	PN-D50-04	No	D-50/D-550 sound library
Int1	same as Pre1	Yes	-
Int2	same as Pre2	Yes	-
Int3	same as Pre3	Yes	-
Int4	same as Pre4	Yes	-
Int5	same as Pre5	Yes	-
Int6	same as Pre6	Yes	-
Int7	(blank)	Yes	-
Int8	(blank)	Yes	-

There are three ways of patch selection.

- Selecting Patches with the VALUE dial.
- Selecting Patches from the list.
- Selecting Patches with Patch Palette.

Selecting Patches with the VALUE dial

1. Make sure the **PATCH TOP** screen is displayed. If the **PATCH TOP** screen—shown right—is not displayed, press **[EXIT]** once or twice until the **PATCH TOP** screen appears.
2. Play the keyboard to hear what the selected patch sounds like. To change to a different patch, touch the **Patch number** to highlight it, and then turn the **VALUE dial** or press **[INC/+]**, **[DEC/-]**. At this time you can switch more rapidly by holding down **[SHIFT]** while you perform these operations.



Selecting Patches from the List

You can easily find the desired patch by selecting it from the patch list.

1. Make sure the **PATCH TOP** screen is displayed. If the **PATCH TOP** screen is not displayed, press **[EXIT]** once or twice until the **PATCH TOP** screen appears.
2. Touch **<List>** in the upper left area of the display. The **PATCH List** window appears.
3. Select a patch from the list. Either turn the **VALUE dial** or use **[INC/+]**, **[DEC/-]** to select a patch. You can also select a patch by touching it on the display.
4. To view higher-numbered patches, touch **<31-48>**–**<71-88>**, located at bottom of the screen. To view other Patch banks, touch **<Pre1>**–**<Pre6>**, **<Int1>**–**<Int8>**, located at either side of the screen.
5. Touch **<OK>**. The patch is selected and the **PATCH LIST** window closes.

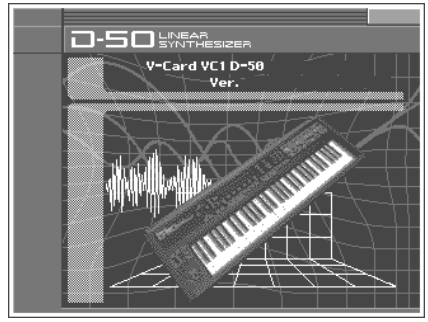
Selecting Patches with Patch Palette

You can select patches of currently selected Patch Bank instantly by simply pressing **NUMBER [1]–[8]**.

1. Make sure the **PATCH TOP** screen is displayed.
2. Press **NUMBER [1]–[8]** to select a patch. To switch banks, press **[BANK-]**, **[BANK+]**.

Viewing Various Information

1. In the upper right of the screen, touch **< ▼ >**. A pulldown menu appears.
2. In the pulldown menu, touch **<INFO>**. The **Information** window appears.



3. This window shows the following information.
   Ver.: The VC-1's program version
4. When you have finished viewing the information, press **[EXIT]** to close the window.

Enabling or Disabling the Beep Tone

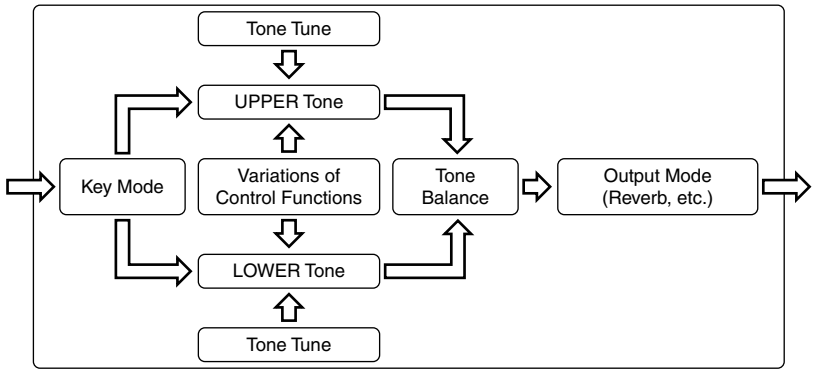
You can specify whether or not a **beep tone** will be heard when you touch a valid point on the touch screen. At the factory setting, the beep tone will be sounded.

1. In the upper right of the screen, touch **< ▼ >**. A pulldown menu appears.
2. In the pulldown menu, touch **<Beep>** to add a check mark (✔). With this setting, the beep tone will be heard. If you perform the same procedure once again, the check mark will be cleared and the beep tone will no longer be heard.

Applying Effects to the Sound

The performance controlling functions (we call them **factors** in this manual) in each Patch can be edited by taking the following procedure.

A patch consists of several **Factors** as show below.



Assigning Parameters to the Controllers

You can assign a variety of patch factors (p. 81), tone parameters (p. 82), and other settings to the V-Synth XT's complement of controller sections. This is referred to as the **Control Setup**. With intuitive editing of sound sources with the knobs, you can use the D-50 in ways that go way beyond the original instrument.

Controllers	Parameters
E1–E8 knobs	Patch Factor (p. 81) Tone Parameters (p. 82) Partial Parameters (p. 83)

1. Access the **PATCH TOP** Screen.

2. Touch  in the lower left of the screen. The **CTRL SETUP** window appears.

3. When editing a parameter that requires you to specify a value, move the cursor to the value box of that parameter. Then modify the value by either turning the **VALUE dial** or pressing **[INC/+]** or **[DEC/-]**.

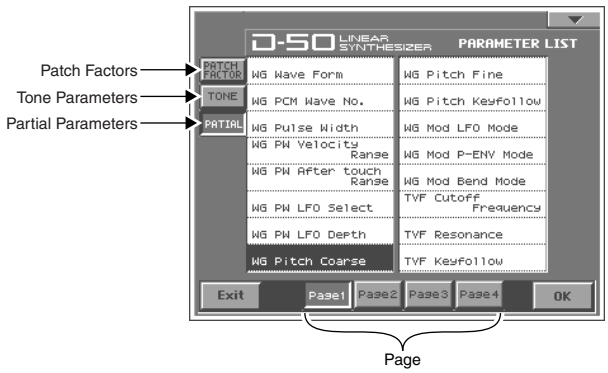
Parameters marked by CTRL can be controlled by specific CTRL Setup. For details on each parameter, refer to the corresponding reference page.

The on-screen keys have the following functions.

Keys	Functions
List	Displays the parameters to be assigned as a list.
Exit	Returns to the screen.
Init	Restores the assigned parameters to their original factory condition.

LIST (OSC1, OSC2, COSM1, COSM2 and TVA)

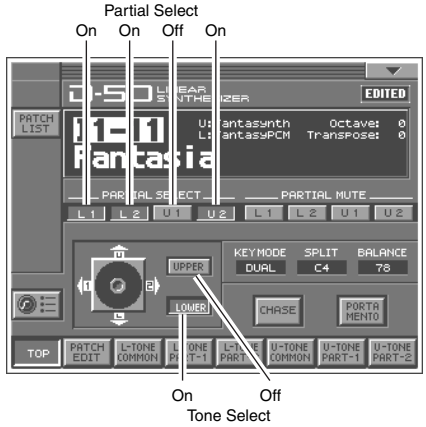
- Tone Parameters; The Tones (UPPER or LOWER) to be applied are specified with the **Tone Select** button.
- Partial Parameters; The Partials (L1, L2, L3 or L4) to be applied are specified with the **Partial Select** button.



Specify the Tones or the Partials to be applied

The partials to which the tone parameters assigned to the different knobs (E1–E8) are applied are specified with the **Tone Select** button or the **Partial Select** button.

- Tone Parameters; The Tones (UPPER or LOWER) to be applied are specified with the **Tone Select** button.
- Partial Parameters; The Partials (L1, L2, L3 or L4) to be applied are specified with the **Partial Select** button.



* *The Tone Select or the Partial Select setting will be written by the Patch Write Procedure.*

table

You can control the following parameters.

Display	Parameters
PATCH TOP (p. 19)	
ToneBal	Tone Balance
PATCH EDIT CONTRL (p. 21)	
BendRang	Bender Range
AftrPB	Aftertouch Bend Range
PortTime	Portamento Time
PortMode	Portamento Mode
PATCH EDIT OUTPUT (p. 22)	
Rev Bal	Reverb Balance
TotalVol	Total Volume
PATCH EDIT CHASE (p. 24)	
ChasLevl	Chase Level
ChasTime	Chase Time
PATCH EDIT TONE TUNE (p. 25)	
LowerKey	Lower Tone Key Shift
UpperKey	Upper Tone Key Shift
LowerTun	Lower Tone Fine Tune
UpperTun	Upper Tone Fine Tune
TONE COMMON STRUCT (p. 50)	
PartBal	Partial Balance
TONE COMMON P-ENV (p. 51)	
PEnvVelo	P-ENV Velocity Range
PEnvTKF	P-ENV Time Keyfollow
PEnvT1	P-ENV Time 1
PEnvT2	P-ENV Time 2
PEnvT3	P-ENV Time 3
PEnvT4	P-ENV Time 4
PEnvL0	P-ENV Level 0
PEnvL1	P-ENV Level 1
PEnvL2	P-ENV Level 2
PEnvSusL	P-ENV Sustain Level
PEnvEndL	P-ENV End Level
PModLFOD	P-Mod LFO Depth
PModLevr	P-Mod Lever
PModAftr	P-Mod Aftertouch
TONE COMMON LFO (p. 53)	
LFO1Wave	LFO-1 Waveform
LFO1Rate	LFO-1 Rate
LFO1Dely	LFO-1 Delay Time
LFO1Sync	LFO-1 Sync
LFO2Wave	LFO-2 Waveform
LFO2Rate	LFO-2 Rate
LFO2Dely	LFO-2 Delay Time
LFO2Sync	LFO-2 Sync
LFO3Wave	LFO-3 Waveform
LFO3Rate	LFO-3 Rate

Display	Parameters
LFO3Dely	LFO-3 Delay Time
LFO3Sync	LFO-3 Sync
TONE COMMON EQ/CHORUS (p. 54)	
EQ Lg	Low EQ Gain
EQ Hg	High EQ Gain
ChorRate	Chorus Rate
ChorDpth	Chorus Depth
ChorBal	Chorus Balance
TONE PARTIAL FORM (p. 57)	
Waveform	WG Waveform
PCM No#	WG PCM Wave No.
PW	WG Pulse Width
PW Velo	WG PW Velocity Range
PW Aftr	WG PW Aftertouch Range
PW LFO	WG PW LFO Select
PW LFOD	WG PW LFO Depth
TONE PARTIAL PITCH (p. 59)	
PichCors	WG Pitch Coarse
PichFine	WG Pitch Fine
PichKF	WG Pitch Keyfollow
PichLFO	WG Mod LFO Mode
PichENV	WG Mod P-ENV Mode
PichBend	WG Mod Bend Mode
TONE PARTIAL TVF (p. 61)	
TVF Freq	TVF Cutoff Frequency
TVF Reso	TVF Resonance
TVF KF	TVF Keyfollow
TVF BP	TVF Bias Point/Dir
TVF Blvl	TVF Bias Level
TVFDpth	TVF ENV Depth
TVFVelo	TVF ENV Velocity Range
TVF DKF	TVF ENV Depth Keyfollow
TVF TKF	TVF ENV Time Keyfollow
TVF T1	TVF ENV Time 1
TVF T2	TVF ENV Time 2
TVF T3	TVF ENV Time 3
TVF T4	TVF ENV Time 4
TVF T5	TVF ENV Time 5
TVF L1	TVF ENV Level 1
TVF L2	TVF ENV Level 2
TVF L3	TVF ENV Level 3
TVF SusL	TVF ENV Sustain Level
TVF EndL	TVF ENV End Level

Display	Parameters
TONE PARTIAL TVA (p. 66)	
TVA Levl	TVA Level
TVA Velo	TVA Velocity Range
TVA BP	TVA Bias Point/Dir
TVA Blvl	TVA Bias Level
TVA Velo	TVA ENV Velocity Folw
TVA TKF	TVA ENV Time Keyfollow
TVA T1	TVA ENV Time 1
TVA T2	TVA ENV Time 2
TVA T3	TVA ENV Time 3
TVA T4	TVA ENV Time 4
TVA T5	TVA ENV Time 5
TVA L1	TVA ENV Level 1
TVA L2	TVA ENV Level 2
TVA L3	TVA ENV Level 3
TVA SusL	TVA ENV Sustain Level
TVA EndL	TVA ENV End Level
TONE PARTIAL MOD (p. 69)	
TVF LFO	TVF Mod LFO Select
TVF LFOD	TVF Mod LFO Depth
TVF Aftr	TVF Mod Aftertouch Range
TVA LFO	TVA Mod LFO Select
TVA LFOD	TVA Mod LFO Depth
TVA Aftr	TVA Mod Aftertouch Range

How to Make the Patch Factors

The Display shows several Factors at a time. If necessary, Scroll up or down the Display to find the Factor to be edited. (Patch Parameters; p. 19)

1. Access the **PATCH TOP** Screen.
2. Touch **<PATCH EDIT>** at the bottom of the screen.
3. Touch one of the tabs in the left of the screen to select the desired editing screen.

   <CONTRL>: Control Edit, Portamento Edit (p. 21)
   <OUTPUT>: Output Mode (p. 22)
   <CHASE>: Chase Edit (p. 24)
   <TONE TUNE>: Tone Tune (p. 25)
   <MIDI>: MIDI function (p. 25)
4. When editing a parameter that requires you to specify a value, move the cursor to the value box of that parameter. Then modify the value by either turning the **VALUE dial** or pressing **[INC/+]** or **[DEC/-]**.
5. Repeat steps 3–4 to set patch factors.
6. If you wish to save the changes you've made, perform the Save operation (p. 27). If you do not wish to save changes, press **[EXIT]** to return to the **PATCH TOP** screen. If you return to the **PATCH TOP** screen without saving, the display will indicate "**EDITED**," reminding you that the patch settings have been modified.

* *If you turn off the power or select a different patch while the display indicates "**EDITED**," your edited patch will be lost.*

Settings Common to All Screens

UPPER/LOWER (Tone Select Button)

You can select the tone to be controlled, upper tone, lower tone or both tone.

KEY MODE

Key Mode refers to the Upper and Lower Tones are played on the keyboard.

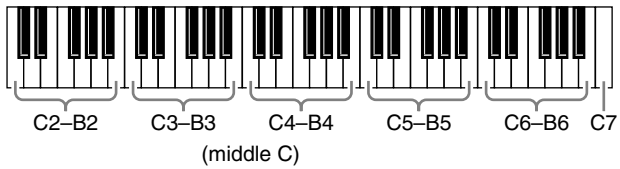
Value: WHOLE, DUAL, SPLIT, SEP, WHOL-S, DUAL-S, SPL-US, SPL-LS, SEP-S

Display	Description
WHOLE	Upper Tone can be played in 16 voice polyphony
DUAL	Both Upper and Lower Tones are played by each key in 8 voices polyphony.
SPLIT	The Split mode divides the keyboard into upper and lower sections, where two different Tones can be played in 8 voices polyphony. That is, the VC-1 works like two 8 voice synthesizers. The **Split Point** (where the keyboard is divided into two sections) is shown next to the Key Mode indication.
SEP (Separate)	This mode is effective when an external MIDI device is controlling the VC-1.(**"MIDI Implementation"** (p. 88))
WHOL-S (Whole Solo)	The Upper Tone is monophonic.
DUAL-S (Dual Solo)	Both Upper and Lower Tones are monophonic.
SPL-US (Split Upper Solo)	The Upper Tone is monophonic, and the Lower Tone is 8 voices polyphonic.
SPL-LS (Split Lower Solo)	The Lower Tone is monophonic, and the Upper Tone is 8 voices polyphonic.
SEP-S (Separate Solo)	This mode is effective when an external a MIDI device is controlling the VC-1. (**"MIDI Implementation"** (p. 88))

SPLIT

The Split Point can be changed as follows.

Value: C2–C7



BALANCE (Tone Balance) CTRL

The volume balance of the Upper and the Lower Tone can be change.

Value: 0–100

CHASE (Chase Button)

Switches the Chase function on and off. Touch the button once to switch the function on; touch it again to switch the function off again.

Value: OFF, ON

PORTAMENTO (Portamento Button)

Switches the Portamento function on and off. Portamento is a slide from one pitch to another, and is often used for violin performance. Touch the button once to switch the function on; touch it again to switch the function off again.

Value: OFF, ON

CONTROL

Patch Controls determine how the Control Functions actually affect the Upper and the Lower Tones.

Bend (Bender Range) CTRL

This sets the variable range of the pitch change caused by moving the Bender lever fight and left. The variable range set here may result differently depending on the setting of the Tone Parameter Bender Mode (p. 60).

Value: 0–12

AfterPB (Aftertouch, Pitch Bender) CTRL

This sets the sensitivity of the aftertouch effect on pitch. Higher values mean higher sensitivity. A Minus setting decreases the pitch, and a plus setting increases it.

Value: -12–+12

Hold (Hold Mode)

This selects the Tone that on the Pedal Hold effect. When the **Key mode** is **Whole**, Pedal Hold always works whichever of the above three modes may be selected.

Value: U, L, UL

Display	Function
U	Works on the Upper Tone.
L	Works on the Lower Tone.
UL	Works on the both Tones.

Time (Portamento Time) CTRL

This sets the portamento time from one note to another. Higher values make the time longer.

Value: 0–100

Mode (Portamento Mode) CTRL

This selects the Tone that should take on the Portamento effect. When the **Key Mode** is **Whole**, Portamento always works whichever of the above three modes may be selected.

Value: U, L, UL

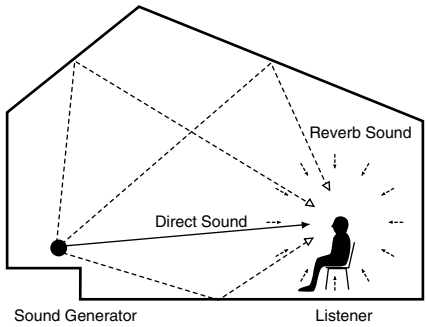
Display	Function
U	Works on the Upper Tone.
L	Works on the Lower Tone.
UL	Works on the both Tones.

* *Even when Portamento is set to ON, the Portamento ON/OFF message sent from an external device can change the settings of Portamento.*

OUTPUT (Output Mode)

The Output Mode determines how the Tones take on the **reverb** effect, and how the Tones appear at the outputs.

A sound reverberated in an acoustic environment consists of three parts. First, you hear the direct sound as it travels from the source outward. Next the early reflection resounds once, or several time, from the walls, ceiling ,and floor. Finally, you hear the reverberated sound as it reflects many times in the environment.



Mode (Output Mode)

Selects one of the following four output modes.

Value: 1–4

Display	Function
	Stereo reverb works on the mixed sound of Upper and Lower Tones, and id sent out in stereo.
	The Mixture of Upper and Lower takes on stereo reverb, and the direct sound is sent out separately for Upper and Lower.
	Only the Upper Tone takes on reverb. Upper and lower Tones are sent out separately.
	Only the Lower Tone takes on reverb, Upper and Lower Tones are sent out separately.

RevType (Reverb Type)

Selects one of the 32-reverb types.

Value: 1–32

Display	Description
1	Small Hall
2	Medium Hall
3	Large Hall
4	Chapel
5	Box
6	Small Metal Room
7	Small Room
8	Medium Room
9	Medium Large Room
10	Large Room
11	Single Delay (102 ms)
12	Cross Delay (180 ms)
13	Cross Delay (224 ms)
14	Cross Delay(148–296 ms)
15	Short Gate (200 ms)
16	Long Gate (480 ms)

Display	Description
17	Bright Hall
18	Large Cave
19	Steel Pan
20	Delay (248 ms)
21	Delay (338 ms)
22	Cross Delay (157 ms)
23	Cross Delay (252 ms)
24	Cross Delay (274–137 ms)
25	Gate Reverb
26	Reverse Gate (360 ms)
27	Reverse Gate (480 ms)
28	Slap Back
29	Slap Back
30	Slap Back
31	Twisted Space
32	Space

* *The reverb types **17**–**32** in individual banks can be used only with the patches (64 patches) contained in that bank. Reverb types from a bank other than the internal banks (any from 1 through 32) can be copied to a reverb type in the internal banks (any from 17 through 32).*

Revbal (Reverb Balance) CTRL

Sets the volume of the reverb and direct sounds.

Value: 0–100

Display	Function
100	The volume of the reverb sound = maximum, the volume of the direct sound = 0.
0	The volume of the reverb sound = 0, the volume of the direct sound = maximum.

Vol (Total Volume) CTRL

Sets the volume of both tones, and therefore adjusts the volume difference between Patches.

Value: 0–100

CHASE

The Chase Play function makes it possible to output the Lower Tone slightly later than the Upper Tone, which is actually played on the keyboard. This function, however, is only available in **Dual** or **Whole** Key Mode.

Mode (Chase Mode)

Sets how tones sound. Depending on the **Chase Level** and **Velocity**, the number of repeats of the delayed sound differ.
Value: UL, ULL, ULU

- When the Key Mode is Dual

Display		Function
UL		The Upper Tone then the Lower Tone is played.
ULL		The Upper, then the Lower Tone is repeated.
ULU		The Upper, the Lower and the Upper Tone alternate.

- When the Key Mode is Whole

Display		Function
UL		The Upper Tone is played twice.
ULL		Upper Tone is repeated.
ULU		Upper Tone is repeated.

Level (Chase Level) CTRL

Sets the volume of the chase sound.
Value: 0–100

Time (Chase Time) CTRL

Adjusts the sounding time. Higher value is longer time.
Value: 0–100

TONE TUNE

The relative pitch of the Upper and the Lower Tones can be separately set. By setting slightly different pitches, a detune effect can be obtained. Also, by lowering the pitch of the Upper Tone, and raising the pitch of the Lower Tone, the pitches of the Two Tones can become exactly the same.

LKey (Key Shift of the Lower Tone) CTRL

Allows you to shift the pitch of the Lower Tone in semi-tone steps.

Value: -24–+24 (+/- 2 octave)

UKey (Key Shift of the Upper Tone) CTRL

Allows you to shift the pitch of the Upper Tone in semi-tone steps.

Value: -24–+24 (+/- 2 octave)

LTune (Fine Tuning of the Lower Tone) CTRL

Allows you to Tune the pitch of the Lower Tone.

Value: -50–+50 (approx. +/- 2 cents)

UTune (Fine Tuning of the Upper Tone) CTRL

Allows you to Tune the pitch of the Upper Tone.

Value: -50–+50 (approx. +/- 2 cents)

MIDI

You can change the setting of the MIDI Functions included Patch Factor as follows.

TxCH (Transmit Channel)

The transmit channel of each Patch can be set to a deferent number from the basic channel. At B, the channel number is the same as the Basic Channel.

Value: B, 1–16

TxPC (Transmit Program Change Number)

A Program Change number to be transmitted can be set for each patch individually. At OFF, the Program Change number preprogrammed in each Patch is transmitted.

Value: OFF, 1–100

TxBS (Transmit Bank Select Switch) VC-1

A Bank Select number MSB to be transmitted can be set for each patch individually (LSB = 0). At OFF, the Bank Select number preprogrammed in each Patch is transmitted.

Value: OFF, 0–99

SepCH (Receive Channel in Separate Mode)

A receive MIDI Channel in separate mode can be set for each Patch individually. At OFF, the receive channel set in MIDI Functions commonly set for System Function is used. (p. 73)

Value: OFF, 1–16

Saving Patches You've Created

When you edit the settings of a patch, the **PATCH TOP** screen displays **<EDITED>** to remind you that the patch's settings have been modified. If **<EDITED>** is displayed, you will lose your edited patch settings if you switch to another patch or turn off the power. If you want to keep a patch whose settings you have edited, assign a name to the patch and then perform the **Save operation**.

Naming a Patch

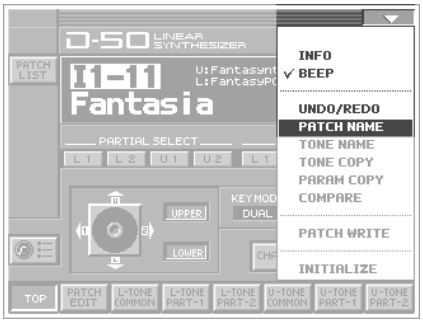
Before you save the patch, here's how to give it a new name. Editing Patch or Tone names is called **Naming**.

- A Patch name can have up to 18 letters.
- A Tone name can have up to 10 letters.

1. Make sure that the patch that you want to name is selected.

2. Touch **< ▼ >** in the upper right of the screen. A pulldown menu appears.

3. In the pulldown menu, touch **<PATCH NAME>** (or **<TONE NAME>**). The window for naming appears.



4. Touch the on-screen alphabetic or numeric keys to enter the new name in the text box. The on-screen keys have the following functions.

Keys	Functions
◄ , ►	Move the cursor in the text box to the desired input location.
Shift	Turn this on when you want to input uppercase letters or symbols.
Insert	Turn this on when you want to insert a character at the cursor location.
Clear	Erases all characters in the text box.
Delete	Deletes the character at the cursor location.
Back	Deletes the character that precedes the cursor location.

* *You can also move the input location cursor by pressing the [◄] or [►] cursor buttons. Pressing [▲] will change the character at the cursor location to uppercase, and pressing [▼] will change it to lowercase.*

5. When you have finished inputting, touch **<OK>** to finalize the patch name.

Saving Patches

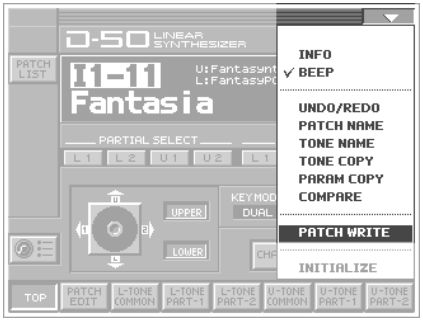
Changes you make to sound settings are temporary, and will be lost if you turn off the power or select another sound. If you keep the modified sound, you must save it (PATCH WRITE).

When you perform the save procedure, the data that previously occupied the save destination will be lost. However, the factory setting data can be recovered by performing the **Factory Reset**. (p. 28)

1. Make sure that the patch you wish to save is selected.

2. Touch **< ▼ >** in the upper right of the screen. A pulldown menu appears.

3. In the pulldown menu, touch **<PATCH WRITE>**. The **PATCH WRITE** window appears.



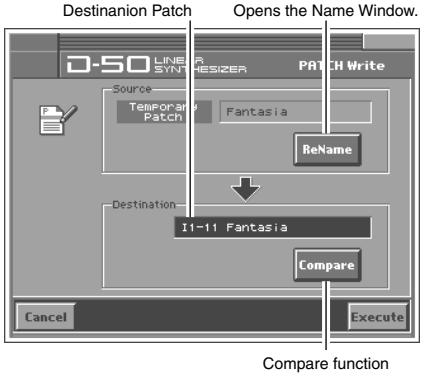
4. Turn the **VALUE dial** to specify the save-destination patch.

- When you touch **<ReName>**, the **PATCH NAME** window will appear, allowing you to rename the patch.
- By touching **<Compare>** you can check the save-destination patch. This can help prevent important patches from being accidentally overwritten and lost.

5. Touch **<Compare>** to turn it on. Now you can play the patch that is in the currently selected save destination. Play the keyboard to sound the save destination patch, then check whether you really want to overwrite it.

* *The patch auditioned using the Compare function may sound slightly different than when it is played normally.*

6. Touch **<Execute>** to execute the Save operation.



Reset to Default Factory Settings

This restores all data in the VC-1 to the factory-set condition (Factory Reset).
If there is important data you've created that's stored, all such data is discarded when a Factory Reset is performed. If you want to keep the existing data, save it as describe below.

- Transmit it to an original D-50 (or an external MIDI device), and save it (p. 33).
- Transmit it to a PC using V-Synth XT USB function, and save it.

* *For details on V-Synth XT USB function, refer to the V-Synth XT owner's manual.*

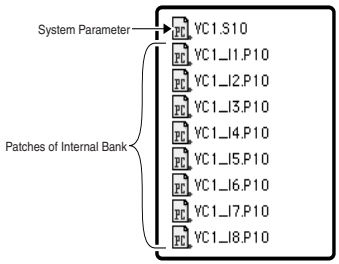
1. Press **[MODE]**. The **MODE MENU** window appears.
2. Touch **<FACTORY RESET>**. The **Factory Reset** screen appears.

3. Touch **<OK>**
4. Touch **<Execute>** to execute the Factory Reset. When the display indicates "**Completed!**," the factory reset operation has been completed.

The VC-1's File Structure

As seen from your computer, the VC-1's file structure is as follows.

- You can use the computer to copy (back up) these files to the computer (e.g., the hard disk).
- Do not perform operations on your computer to erase (format) or rename these folders or files.



Transferring Patches To and From the D-50/550

You can use MIDI to transmit patch data (64 patches) saved on your D-50 and receive the data with the VC-1 (V-Synth XT). This procedure is known as "**bulk load**." This is an easy and convenient way to take your own original patches (64 patches) created with the D-50 and use them with the VC-1.
Conversely, you can also send patch data edited using the VC-1 via MIDI to the D-50. This procedure is called "**bulk dump**."

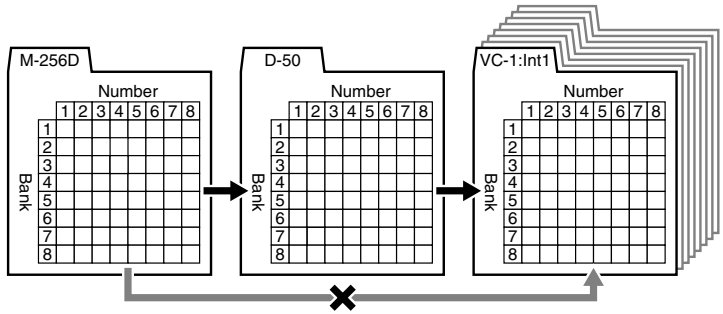
* *Read this material together with the D-50/550 Owner's Manual.*

Transferring Patches from the D-50 to the VC-1

- Patches (64 patches) bulk loaded from the D-50 to the VC-1 are temporarily transferred to the **patch bank that includes the current patch**.

Currently Patch Sample	→	Destination Patch Bank Sample
I1-11:Fantasia	→	Int1-11 – Int1-88
I6-88:Big Wave	→	Int6-11 – Int6-88

- The patches (64 patches) originally residing in the bulk load destination will appear to have been overwritten, but actually nothing will have been lost. The patches are restored when you turn the power off, then on again.
- The transferred patch data (64 patches) will be lost if you turn off the power. Be sure to save the data (**"Saving Transferred Patches"** (p. 32)).
- Patches saved to memory cards used with the D-50/550 (M-256D) cannot be transferred directly from these memory cards to the VC-1. First, transfer the patch data to the D-50/550 from the memory card (M-256D), then transfer the patch data from the D-50/550 to the VC-1.



Use the following procedure.

Transfer the patch from the memory card to the D-50/550 (p. 30)

▼

Transferring Patches from the D-50/550 to the VC-1 (p. 31)

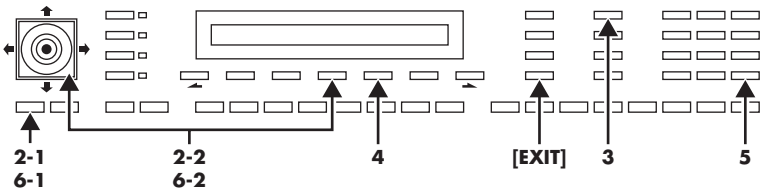
▼

Saving Transferred Patches (p. 32)

Transfer the patch from the memory card to the D-50/550

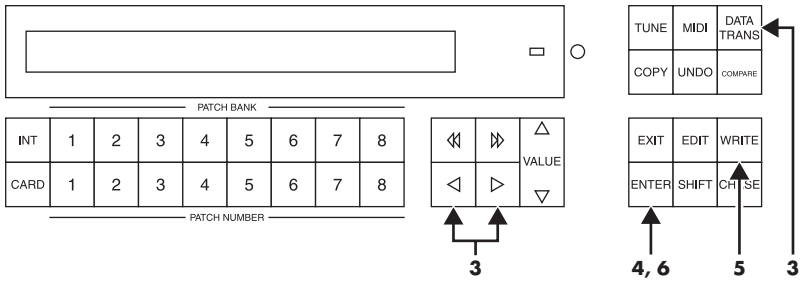
All the 64 Patches data stored on the Memory Card can be loaded to the D-50/550's internal memory.

Using the D-50



1. Insert the Memory Card (M-256D) into the D-50 Card Slot.
2. Turn the **Memory Protect** of the D-50 to **OFF**.
   - **2-1.** Press the **[TUNE/FUNCTION]** button.
   - **2-2.** Select "**Protect**" with the **Selector button** and turn it **OFF** with the joystick.
3. Press the **[DATA TRANSFER]** button.
4. Select "**(Card -> Int)**" with the corresponding **Selector button**.
5. Press **[ENTER]** button. When the data transfer is completed, the display shows "**Complete**."
6. Return the Memory Protect of the D-50 to **On**.
   - **6-1.** Press the **[TUNE/FUNCTION]** button.
   - **6-2.** Select "**Protect**" with the **Selector button** and turn it **ON** with the joystick.

Using the D-550



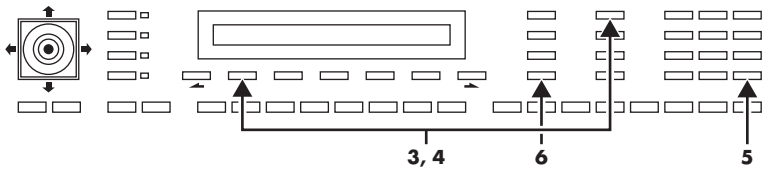
1. Insert the Memory Card (M-256D) into the D-550 Card Slot.
2. Press the **[DATA TRANS]** button.
3. Using the **[◀]** or **[▶]** buttons, select "**(Card -> Int)**."
4. Press the **[ENTER]** button.
5. Press the **[WRITE]** button to turn the Memory Protect **OFF** temporarily.
6. Press the **[ENTER]** button again. When the data transfer is completed, the display shows "**Complete**."

Transferring Patches from the D-50/550 to the VC-1

* *You cannot bulk load data when a patch in the Preset Banks (Pre1 – Pre6) is selected.*

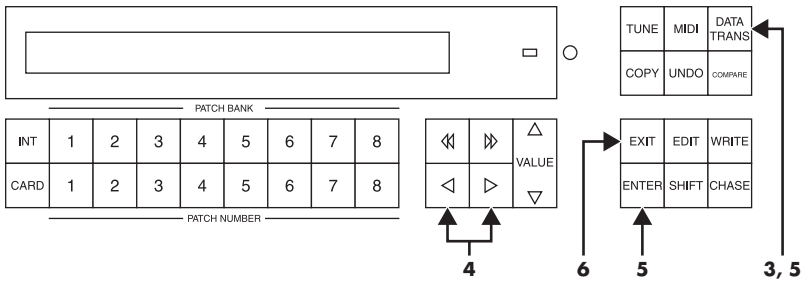
* *The VC-1 display does not change immediately following the bulk load. This is due to the fact that the work area is the bulk load destination (p. 37). You can confirm the outcome of the transfer by switching patches with the* ***VALUE dial****.*

Using the D-50



1. Use a MIDI cable to connect the D-50's **MIDI OUT** connector to the V-Synth XT's **MIDI IN** connector.
2. Set the D-50 and V-Synth XT to the same MIDI channel (the basic channel; p. 73).
3. Press the D-50's **[DATA TRANSFER]** button.
4. While pressing the D-50's **[DATA TRANSFER]** button, specify "**B.Dump**" with the **Selector button**.
5. Press the D-50's **[ENTER]** button to begin the bulk dump. When the data transfer is completed, the D-50's display shows "**Complete**."
6. Press the **[EXIT]** button on the D-50 to return to the play mode.

Using the D-550



1. Use a MIDI cable to connect the D-550's **MIDI OUT** connector to the V-Synth XT's **MIDI IN** connector.
2. Set the D-550 and V-Synth XT to the same MIDI channel (the basic channel; p. 73).
3. Press the D-550's **[DATA TRANS]** button.
4. Select "**(B.Dump)**" with the D-550's **[◀]** or **[▶]** buttons.
5. Hold down the **[DATA TRANS]** button and press the D-550's **[ENTER]** button to begin the bulk dump. When the data transfer is completed, the D-550's display shows "**Complete**."
6. Press the **[EXIT]** button on the D-550 to return to the play mode.

Saving Transferred Patches

The transferred patch data (64 patches) will be lost if you turn off the power. Be sure to save the data.

1. Press **[MODE]** on the VC-1. The **MODE MENU** window appears.
2. Touch **<DATA TRANSFER>**. The **DATA TRANSFER** screen appears.

3. Touch **<Bank Copy>** in the left of the screen. The **Bank Copy** screen appears.
4. When editing a parameter that requires you to specify a value, move the cursor to the value box of that parameter. Then modify the value by either turning the **VALUE dial** or pressing **[INC/+]** or **[DEC/-]**.

Source Bank

Selects the save-source bank.

Value: P1 – P6, I1 – I8

Destination Bank

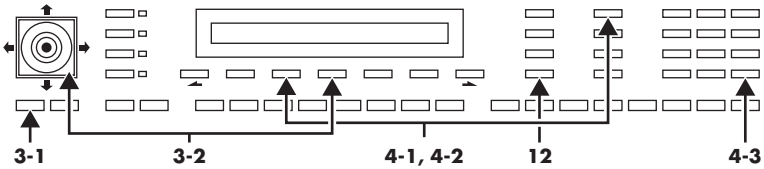
Selects the save-destination bank.

Value: I1 – I8

5. Touch **<OK>** to execute the Save operation. If you want to cancel without executing, touch **<Cancel>**.

Transferring Patches from the VC-1 to the D-50/550

Using the D-50



1. Use a MIDI cable to connect the V-Synth XT's **MIDI OUT** connector to the D-50's **MIDI IN** connector.
2. Set the D-50 and V-Synth XT to the same MIDI channel (the basic channel; p. 73).
3. Turn the **Memory Protect** of the D-50 to **OFF**.
   - **3-1.** Press the **[TUNE/FUNCTION]** button.
   - **3-2.** Select "**Protect**" with the **Selector button** and turn it **OFF** with the joystick.
4. Enable reception of bulk load data on the D-50.
   - **4-1.** Press the D-50's **[DATA TRANSFER]** button.
   - **4-2.** While pressing the D-50's **[DATA TRANSFER]** button, specify **(B.Load)** with the **Selector button**.
   - **4-3.** Press the D-50's **ENTER]** button.
5. Turn the **Exclusive Sw** of the V-Synth XT to **On**.
   - **5-1.** Press **[MODE]**.
   - **5-2.** Touch **<SYSTEM>**.
   - **5-3.** Select "**Exclusive Sw**," then turn the V-Synth XT's **VALUE dial** to specify **On**.

6. Press **[MODE]** on the V-Synth XT. The **MODE MENU** window appears.
7. Touch **<DATA TRANSFER>**. The **DATA TRANSFER** screen appears.
8. Touch **<B.Dump>** in the left of the screen. The **MIDI Bulk Dump** screen appears.

9. Modify the value by either turning the **VALUE dial** or pressing **[INC/+]** or **[DEC/-]**.

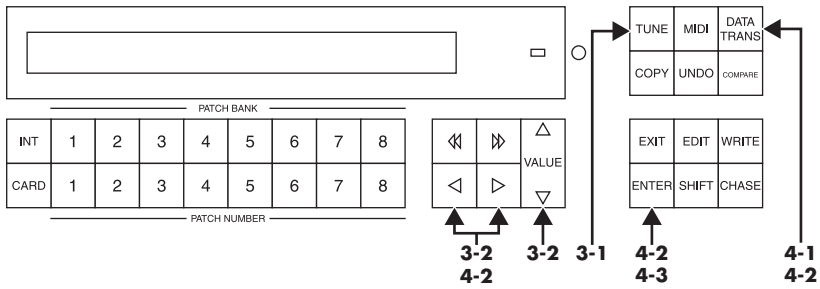
Source Bank

Selects the Patch Bank in the VC-1 with the patch data to transfer to the D-50.

Value: I1 – I8, P1 – P6

10. Touch **<OK>**. The bulk dump starts. If you want to cancel without executing, touch **<Cancel>**.
11. When the data transfer is completed, the D-50's display shows "**Complete**."
12. Press the **[EXIT]** button on the D-50 to return to the play mode.

Using the D-550



1. Use a MIDI cable to connect the VariOS's **MIDI OUT** connector to the D-550's **MIDI IN** connector.

2. Set the D-550 and V-Synth XT to the same MIDI channel (the basic channel; p. 73).

3. Turn the **Memory Protect** of the D-550 to **OFF**.

3-1. Press the D-550's **[TUNE]** button.

3-2. Select "**Protect**" with the **[◀]** or **[▶]** buttons, and turn it **OFF** with the **[VALUE]**.

4. Enable reception of bulk load data on the D-550.

4-1. Press the D-550's **[DATA TRANS]** button.

4-2. Select "**(B.Load)**" with the D-550's **[◀]** or **[▶]** buttons, then press the **[ENTER]** button while holding the **[DATA TRANS]** button.

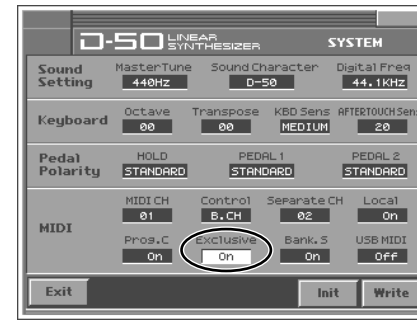
4-3. Press the **[ENTER]** button again.

5. Turn the **Exclusive Sw** of the V-Synth XT to **On**.

5-1. Press **[MODE]**.

5-2. Touch **<SYSTEM>**.

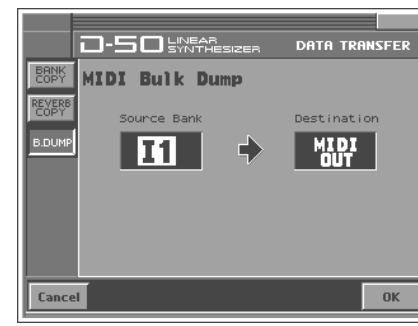
5-3. Select "**Exclusive Sw**," then turn the V-Synth XT's **VALUE dial** to specify **On**.



6. Press **[MODE]** on the V-Synth XT. The **MODE MENU** window appears.

7. Touch **<DATA TRANSFER>**. The **DATA TRANSFER** screen appears.

8. Touch **<B.Dump>** in the left of the screen. The **MIDI Bulk Dump** screen appears.



9. Modify the value by either turning the **VALUE dial** or pressing **[INC/+]** or **[DEC/-]**.

Source Bank

Selects the Patch Bank in the VC-1 with the patch data to transfer to the D-50.

Value: I1 – I8, P1 – P6

10. Touch **<OK>**. The bulk dump starts. If you want to cancel without executing, touch **<Cancel>**.

11. When the data transfer is completed, the D-50's display shows "**Complete**."

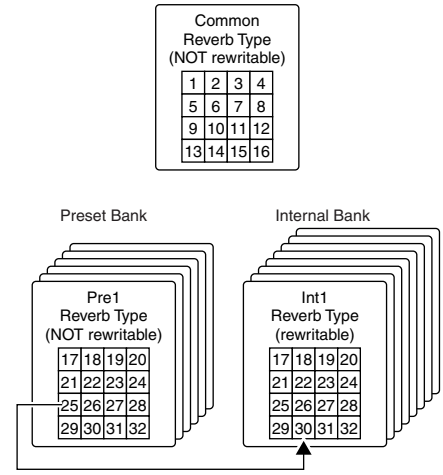
12. Press the **[EXIT]** button on the D-50 to return to the play mode.

Copying a Reverb Type

In addition to the patches (64 patches), **16 reverb types (17–32** are also saved to the VC-1's patch banks (Pre 1–6, Int 1–8). Different reverb types **17–32** are saved to each patch bank. The reverb types you can use vary with the selected patch as described below.

- All shared common reverb types (1–16) can be used.
- The reverb types **17–32** in individual banks can be used only with the patches (64 patches) contained in that bank.
- Reverb types from a bank other than the internal banks (any from 1 through 32) can be copied to a reverb type in the internal banks (any from 17 through 32).
- This is convenient when, for example, you want to use Reverb Type 25 (Gate Reverb) from the Patch Bank **Pre 1** as Reverb Type 30 in the Patch Bank **Int 1**.

* *Reverb Types (17–32) are transferred simultaneously with patch data when patch data is transferred from the D-50 to the VC-1 (bulk loaded) or from the VC-1 to the D-50 (bulk dumped).*



1. Press **[MODE]** on the VC-1. The **MODE MENU** window appears.

2. Touch **<DATA TRANSFER>**. The **DATA TRANSFER** screen appears.

3. Touch **<REVERB COPY>** in the left of the screen. The **REVERB COPY** screen appears.

4. Modify the value by either turning the **VALUE dial** or pressing **[INC/+]** or **[DEC/-]**.

Source Bank

Selects the source Patch Bank of Reverb Type.
Value: P1 – P6, I1 – I8

No.

Selects the source Reverb Type.
Value:1 – 32

Destination Bank

Selects the destination Patch Bank of Reverb Type.
Value: I1 – I8

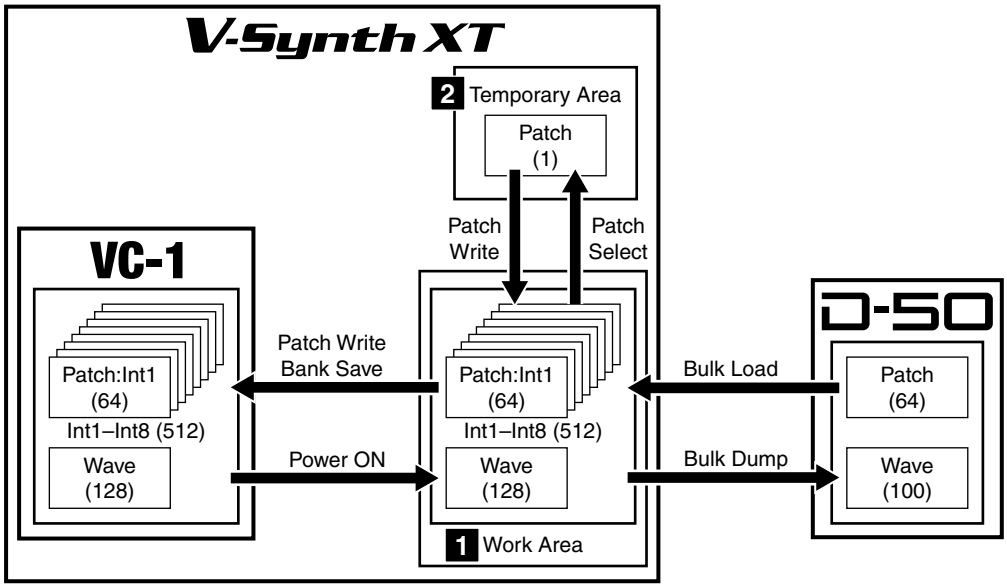
No.

Selects the destination Reverb Type.
Value: 17 – 32

5. Touch **<OK>**. The display will ask "Are You Sure?", then touch **<Execute>** to execute the Reverb Copy operation. If you want to cancel without executing, touch **<Cancel>**.
When the reverb copy is completed, the display shows "**Complete**."

Overview of the VC-1

Memory Structure



1 Work Area

Once the V-Synth XT has started up the VC-1, the system program and patch data is loaded from the VC-1 into the V-Synth XT. The section where the system and patch data is loaded is called the **Work Area**. Content loaded to the Work Area is cleared when the V-Synth XT's power is turned off.
In addition, banks (containing data for 64 patches) bulk dumped from an original D-50 (or other MIDI device) are also stored temporarily in the Work Area. Bulk dumped data is cleared if the power is simply turned off, so be sure to save the data to the VC-1 (p. 27).

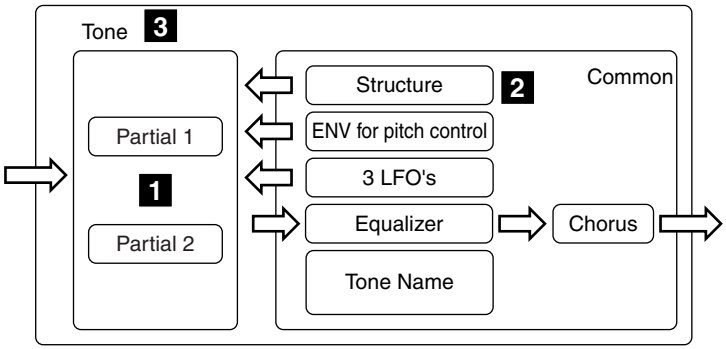
2 Temporary Area

Patch data selected for performance is further taken from the Work Area and placed in memory called the **Temporary Area**. Editing of tones and factors is performed on patches in this Temporary Area. Edited patch data is lost if the power is simply turned off, so be sure to save these to the VC-1 (p. 27).

The Basic Concept of a Tone

Throughout the process of programming the D-50, the operation remains simple and logical.

You can think of the D-50 having powerful synthesizers built in. Each of these hypothetical synthesizers could behave like a convention analog synthesizer, or a PCM sampled synthesizer. Any combination of two synthesizers can achieve some remarkable cross-modulation effects.

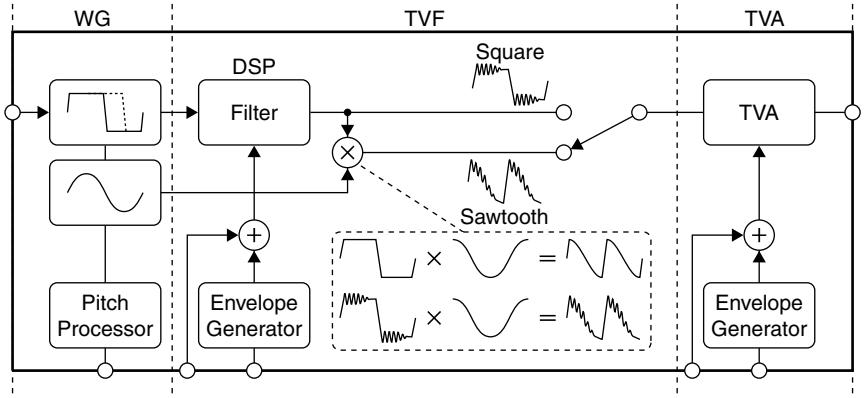


1 Partial

The VC-1 (D-50) appears to have four powerful synthesizers built in. Each of these hypothetical synthesizer could behave like a conventional **analog synthesizer**, or a **PCM sampled synthesizer**. Consequently, They are referred to as **Partials**, since they are far more than just a pure synthesizer. These Partials are combined in pairs to form a **TONE**, A Tone could either be a mix of the two Partials, or they could take advantage of the LA version of cross modulation.

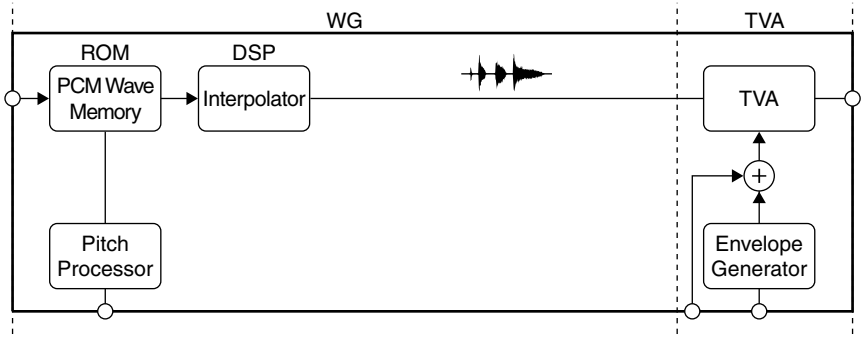
Synthesizer sound generator

A Synthesizer sound generator works like a conventional analog type synthesizer with an oscillator, a filter, an amplifier and two ENV's.



PCM sound generator

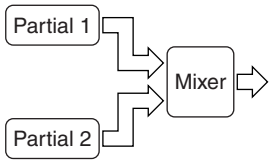
A PCM sound generator provides 128 different PCM sampled sounds (= waveform).



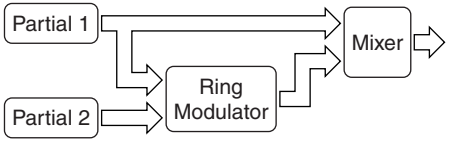
2 Structure

Structure, which is one of the Common Parameters, determines which two of the hypothetical synthesizers (a **synthesizer sound generator** or a **PCM sound generator**) are to be used as Partial 1 and Partial 2.

- These two Partial sounds (Partial 1 and Partial 2) can simply be mixed as show below. By mixing two Partials, fatter sounds can be obtained. This is effective for making strings or organ type sounds.



- Partial 1 can be mixed with the ring-modulated sound of Partials 1 and 2. (**"Ring Modulator"** (p. 40))

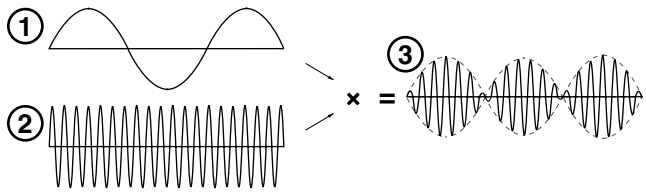


3 Tone

A **Tone** consists of two **Partials** (Partials 1 and 2) and a **Common** block. Some Common parameters apply to both Partials (Partial 1 and 2) . "**Structure**" is one of the Common parameters. It decides which of the two sound generators is used for each Partial. Other Common parameters are an ENV for pitch, three LFO modules, equalizer, chorus, etc.

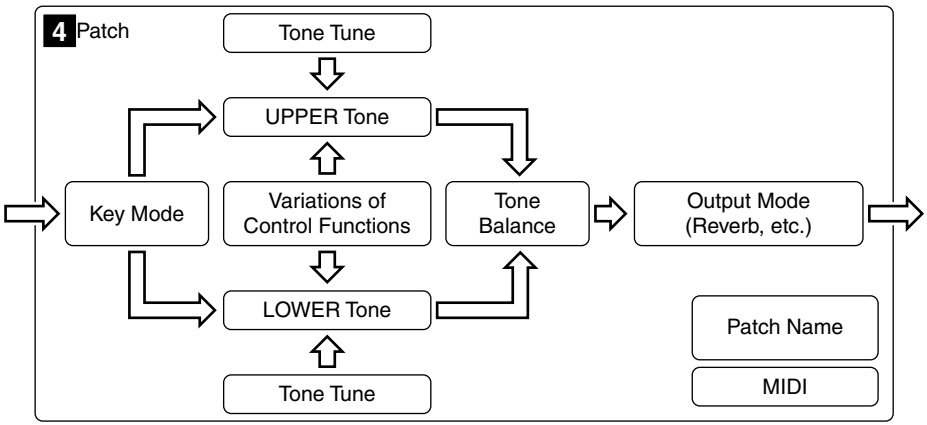
Ring Modulator

The **Ring Modulator** multiplies two sounds, creating an unusual and metallic sound that contains complicated harmonics. For instance, two waveforms (① and ②) are multiplied and waveform ③ is created. This is effective for making metallic sounds.



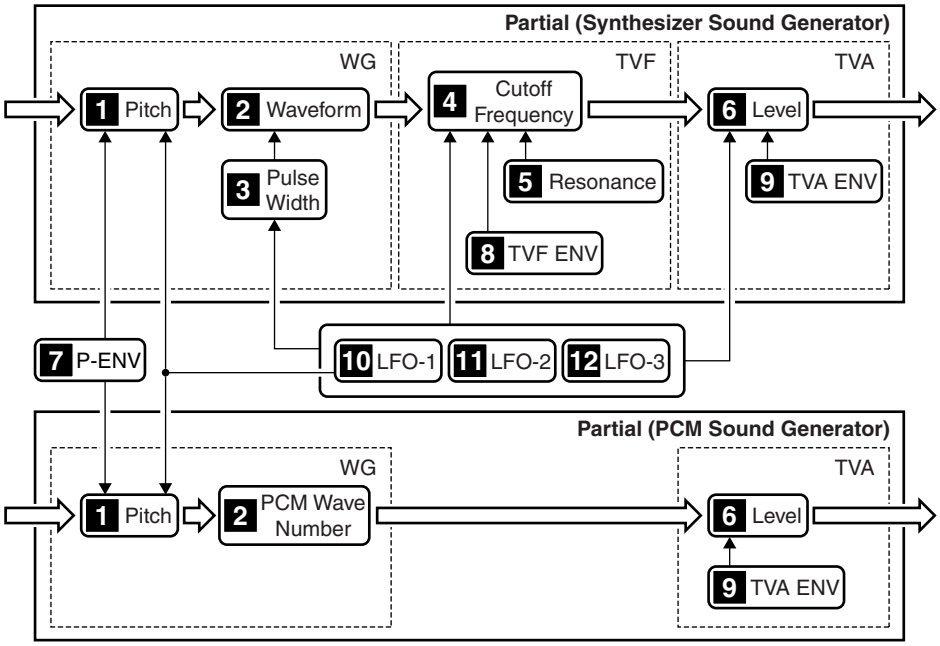
4 Patch

During live performance, you can easily select a **Patch**, which is the combination of two Tones (Upper and Lower), together with programmed E.Q., chorus and reverberation. These other parameters are referred to as **Factor**.



Structure of Tone Parameters

Depending on which **generators** are selected in the **Partial Block**, greatly different Tone Parameters will be used. Some Tone Parameters used for the Synthesizer sound generators are irrelevant to the PCM generator. In a Structure with **Ring modulation**, some parameters of Partial 2 are automatically set to those of Partial 1.



WG (Wave Generator)

In the WG (Wave Generator), the pitch and waveform are controlled.

1 Pitch

The basic pitch of a Partial (sound generator) can be set here. The pitch is a Common parameter, and is therefore controlled by 7 **P-ENV** and 10 **LFO-1**.

2 Waveform, PCM Wave Number

This selects the waveform of the sound source. When a synthesizer sound generator is selected, the waveform can be controlled by the 3 **Pulse Width** controls.

3 Pulse Width

This changes the waveform of the sound source. The pulse width is controlled by any **LFO** (= Common parameter).

TVF (Time Variant Filter)

This fitter passes lower frequency harmonics and cuts off the higher ones. By changing the cutoff point and the resonance, the waveform changes.

4 Cutoff Frequency

This sets the cutoff point. The cutoff point can be controlled by **8 TVF ENV** and any **LFO** (= Common parameter).

5 Resonance

This emphasizes the cut off point, making more unusual or electronic sounds.

TVA (Time Variant Amplifier)

This controls the volume of the Partial.

6 Level

This determines the volume of the sound. When a synthesizer sound generators used, the level can be controlled with the **9 TVF ENV** and **LFO** (Common Parameter) . When a PCM sound generator is used, the **9 TVA ENV** controls the level.

ENV (Envelope Generator)

This generators a control signal (envelope curve) which controls the pitch, timbre and volume of each Partial (sound generator).

7 P-ENV

This is the ENV which controls pitch. It can be set for two selected Partial at once.

8 TVF ENV

This ENV controls the cutoff point, and can be set for each Partial separately.

9 TVA ENV

This ENV controls the volume level. This is can be set for each Partial separately.

LFO (Low Frequency)

This oscillator generates low frequencies only.
Any of the three LFO's can be used for the two partials, Vibrato, PWM growl or tremolo effects can be obtained using these LFO's

* *A different LFO can be used for each section or a **Partial Parameters**.*

10 LFO-1

This can control **1 Pitch**, **3 Pulse Width**, **4 Cutoff Frequency** or **6 Level**.

11 LFO-2

This can control **3 Pulse Width**, **4 Cutoff Frequency** or **6 Level**.

12 LFO-3

This can control **3 Pulse Width**, **4 Cutoff Frequency** or **6 Level**.

Creating a Patch

With the VC-1, you have total control over a wide variety of settings. Each item that can be set is known as a "**parameter**." When you change the values of parameters, you are doing what is referred to as "**editing**." This chapter explains the procedures used in creating patches, and the functions of the patch parameters.

There are two methods of sound creation.

- Editing an existing sound.
- Initializing all the parameters of a certain Partial, and then editing the Partial. (p. 49)

* *Changes you make to sound settings are temporary, and will be lost if you turn off the power or select another sound. If you want to keep the modified sound, you must save it. (**"Saving Patches"** (p. 27))*

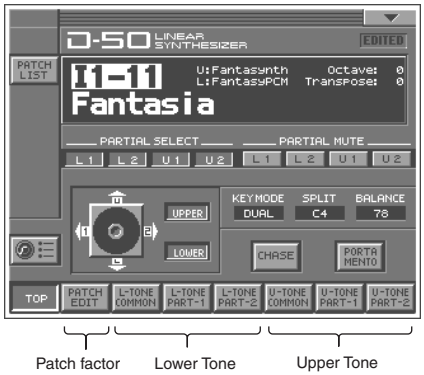
How to Make the Patch Settings

A number of patch **Factors** and **Tone Parameters** are shown in each window.

1. Access the **PATCH TOP** screen, and select the patch whose settings you wish to modify (p. 12).

* *If you want to create all your patches from the ground up, rather than the patches that have already been prepared, carry out the Initialize operation (p. 49).*

2. The parameters are organized into several editing groups. Touch one of the buttons at the bottom of the screen to select the edit group containing the parameters you want to set.



3. Touch one of the tabs in the left of the screen to select the desired editing screen.

4. When editing a parameter that requires you to specify a value, move the cursor to the value box of that parameter. Then modify the value by either turning the **VALUE dial** or pressing **[INC/+]** or **[DEC/-]**. You can also modify a value by dragging over the touch screen.

5. Repeat steps 2–4 to complete a patch.

6. If you wish to save the changes you've made, perform the Save operation (p. 27). If you do not wish to save changes, press **[EXIT]** to return to the **PATCH TOP** screen.

* *If you return to the **PATCH TOP** screen without saving, the display will indicate "**EDITED**," reminding you that the patch settings have been modified. If you turn off the power or select a different patch while the display indicates "**EDITED**," your edited patch will be lost.*

Useful Functions for Editing

The VC-1 provides numerous ways in which you can edit your own patches more conveniently.

Editing a Value

To edit a value, you can use the **VALUE dial**, **[INC/+]** or **[DEC/-]**.In each VC-1 screen, you can select a value using the cursor as described earlier, and modify its value. Each parameter has its own range of possible values. You **CANNOT** set any value smaller than the minimum value or greater than the maximum value.

Cursor Buttons

Press **[▲]**, **[▼]**, **[◄]**, or **[►]** (the cursor buttons) to move the cursor.

VALUE dial

- Turning the **VALUE dial** clockwise increases the value, and turning it counterclockwise decreases its value.
- Hold down **[SHIFT]** as you move the **VALUE dial** to increase value increments to make large value changes more quickly.

[INC/+] and [DEC/-]

- Press **[INC/+]** to increase the selected value, and **[DEC/-]** to decrease it.
- Keep the button pressed for continuous adjustment.
- For faster value increases, keep **[INC/+]** pressed down and press **[DEC/-]**. To decrease values quickly, keep **[DEC/-]** pressed down and press **[INC/+]**.
- Hold down **[SHIFT]** while using **[INC/+]** or **[DEC/-]**, the value will change in larger steps.

Undoing an editing Operation

The **Undo** function returns the current value of the parameter to the original value before being edited. This only refers to the last parameter that has been adjusted.

1. In the upper right of the screen, touch **< ▼ >**. A pulldown menu appears.
2. In the pulldown menu, touch **<UNDO>**.

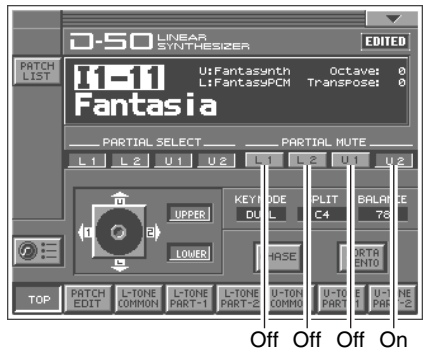
Editing with the Panel Controls (Partial Select)

You can assign a variety of parameters (such as TVF Resonance or TVA Level) to the knobs at the right of the front panel for direct, intuitive editing of the parameters.
The partials to which the tone parameters assigned to the different knobs are applied are specified in the **PATCH TOP** screen or with **STRUCTURE [1]** at the right of the front panel. You can use the knobs to edit the tone parameters of the partial whose indicator is lit.

* *The Partial select setting will be written into the VC-1 by taking the saving procedure. (p. 27)*

Silencing the Sound of the Partial

While editing a Partial parameter, any Partial sound can be muted (Partial Mute).
Partials to be muted are specified in the **PATCH TOP** screen or with **STRUCTURE [3]** at the right of the front panel. The partial is muted when the indicator is off; muting is defeated when the indicator is lit.

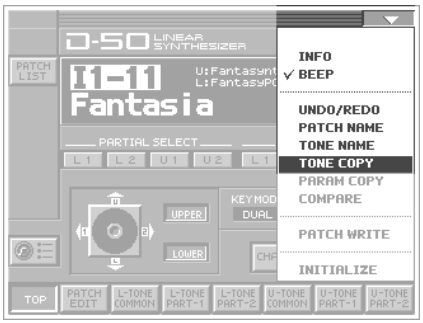


* *The Partial Mute setting will be written into the VC-1 by taking the saving procedure. (p. 27)*

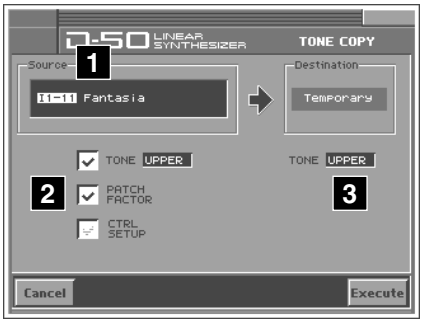
Copying Tone Settings

A Tone from another Patch can be copied to the patch currently selected (Tone Copy).

1. Make sure the **PATCH TOP** screen is displayed.
2. Touch **< ▼ >** in the upper right of the screen. A pulldown menu appears.
3. In the pulldown menu, touch **<TONE COPY>**. The **TONE COPY** window appears.



4. Touch some buttons (checkbox) in the left side of the screen to select the object you want to copy (✔).



Display		Value
1	<Source>	I1-11–I8-88, P1-11–P6-88
2	<TONE>	Off, On (✔), UPPER, LOWER
	<PATCH FACTOR>	Off, On (✔)
	<CTRL SETUP>	Off, On (✔)

5. Touch a button (valuebox) in the right side of the screen to select the destination Tone.

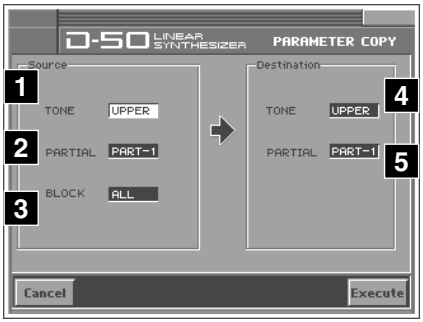
Display		Value
3	<TONE>	UPPER, LOWER

6. Touch **<Execute>** to execute the copy operation. If you want to cancel without executing, touch **<CANCEL>**.

Copying Parameter Settings

A group of Tone parameters can be copied within a Patch (Parameter Copy).

1. Make sure the **PATCH TOP** screen is displayed.
2. Touch **< ▼ >** in the upper right of the screen. A pulldown menu appears.
3. In the pulldown menu, touch **<PARAM COPY>**. The **PARAM COPY** window appears.



4. Touch some button (valuebox) in the left side of the screen to select the object you want to copy.

1 TONE (Source Tone)

Select the Tone to be copied.

Value: UPPER, LOWER

2 PARTIAL (Source Partial)

Select the Partial parameter to be copied.

Value: ALL, COMMON, PART-1, PART-2

Display	Function
<ALL>	All the parameters
<COMMON>	Common parameters
<PART-1>	Partial 1's parameters
<PART-2>	Partial 2's parameters

3 BLOCK (Source Block)

If either PART-1 or PART-2 is selected in **2** , any of the following Blocks can be selected.

Value: ALL, WG, TVF, TVA

Display	Function
<ALL>	All parameters
<WG>	WG parameters (p. 57)
<TVF>	TVF parameters (p. 61)
<TVA>	TVA parameters (p. 66)

5. Touch some button (valuebox) in the right side of the screen to select the destination Tone.

4 TONE (Destination Tone)

Select the location for the Source Tone.

Value: UPPER, LOWER

5 PARTIAL (Source Partial)

If PART-1 or PART-2 is selected in **2** , select the corresponding block.
Value: PART-1, PART-2

* *When* **2** *is set to* ***All*** *or* ***COMMON****,* **5** *setting is ignored.*

6. Touch **<Execute>** to execute the copy operation. If you want to cancel without executing, touch **<CANCEL>**.

Auditioning the Sound Before Editing

While editing a parameter, you may wish to hear the original sound before it was edited. The **Compare** function allows you to call the original Patch without erasing the edited sound.

1. In the upper right of the screen, touch **< ▼ >**. A pulldown menu appears.

2. In the pulldown menu, touch **<CONPARE>**. The **PATCH COMPARE** window appears.

3. Touch **<COMPARE>** to turn it on, and the original sound may be heard by playing the keyboard.

4. Touch **<COMPARE>** again to turn it off, and the edited sound will come back.

5. Touch **<OK>** to return to the **PATCH TOP** screen.

Initializing Patch Settings

Initialize means to return the settings of the currently selected patch to a standard set of values. The Initialize operation will affect only the currently selected patch in temporary area; the patches that are stored in internal memory and work area will not be affected. If you wish to restore all of the VC-1's settings to their factory values, perform a **Factory Reset** (p. 28).

1. Access the **PATCH TOP** screen, and select the patch that you wish to initialize (p. 12).
2. Touch **< ▼ >** in the upper right of the screen. A pulldown menu appears.
3. In the pulldown menu, touch **<INITIALIZE>**. The **INITIALIZE** window appears.

4. Touch some buttons (checkbox) in the screen to select the object you want to initialize (✔).

   <Check All>: Mark all object.
   <PATCH FACTOR>: Patch factor settings. (p. 19)
   <CTRL SETUP>: Control setup settings. (p. 19)
   <COMMON>: Common parameter settings. (p. 50)
   <PART-1>: Partial-1 parameter settings. (p. 56)
   <PART-2>: Partial-2 parameter settings. (p. 56)

5. Touch **<Execute>**. The initialization will be carried out, and you'll be returned to the **PATCH TOP** screen.

Tone Parameters

Common Parameters

Structure

Struct (Structure Number)

Select one of the following seven Structures.

Value: 1–7

Number		Partial 1	Partial 2	Combination of two Partials
1	S → S	S	S	Mixture of Partial 1 and partial 2.
2	S → R, S → S	S	S	Mixture of Partial 1 and ring-modulation.
3	P → S	P	S	Mixture of Partial 1 and partial 2.
4	P → R, S → S	P	S	Mixture of Partial 1 and ring-modulation.
5	S → R, P → P	S	P	Mixture of Partial 1 and ring-modulation
6	P → P	P	P	Mixture of Partial 1 and partial 2.
7	P → R, P → P	P	P	Mixture of Partial 1 and ring-modulation.

S : Synthesizer Sound Generator

P : PCM Sound Generator, R : Ring Modulator

Balance (Partial Balance) VC-1 CTRL

Adjusts the volume balance of the Upper and Lower Tone.

Value: 0–99

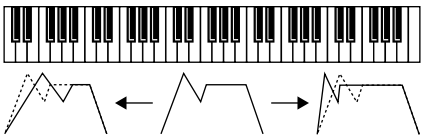
P-ENV (Pitch Envelope)

P-ENV Edit (Envelope)

Velo (Velocity Range) CTRL

Sets the maximum effect of the velocity that controls the pitch of the P-ENV. At higher values, the keyboard velocity has a greater, effect on the envelope.

Value: 0–2



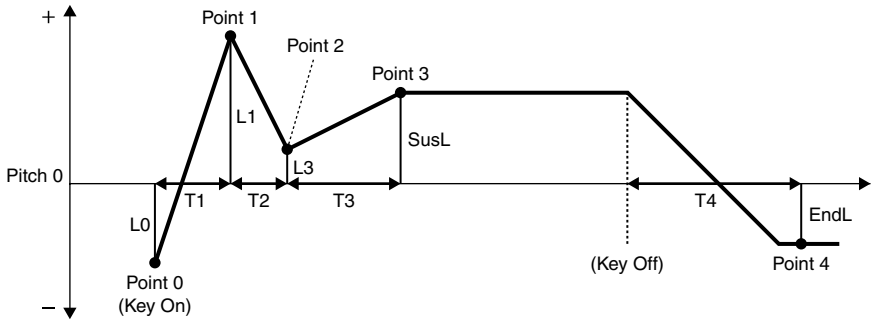
TKF (Keyfollow (Time)) CTRL

Sets the time of the P-ENV depending on the key played. Higher values change the time more drastically.

Value: 0–4

P-ENV Time Edit

The envelope curve is determined by times and levels.



T1 (Time 1) CTRL

Sets the time needed from point 0 (the moment the key is pressed) to point 1.

Value: 0–50

T2 (Time 2) CTRL

Sets the time needed from point 1 to point 2.

Value: 0–50

T3 (Time 3) CTRL

Sets the time needed from point 2 to point 3.

Value: 0–50

T4 (Time 4) CTRL

Sets the time needed from the moment the key is released to point 4.

Value: 0–50

P-ENV Level Edit

L0 (Level 0) CTRL

Sets the pitch created the moment a key is pressed.

Value: -50–+50

L1 (Level 1) CTRL

Sets the pitch of the point 1.

Value: -50–+50

L2 (Level 2) CTRL

Sets the pitch of the point 2.

Value: -50–+50

SusL (Sustain Level) CTRL

Sets the pitch of point 3.

Value: -50–+50

EndL (End Level) CTRL

Sets the pitch of point 4.

Value: -50–+50

* *If the Levels of two adjacent points are set to similar values, the time between these two points may prove to be shorter than what is actually set, or even zero.*

* *The maximum variable range of each level will depend on the Velocity Range in P-ENV. (p. 51)*

Velocity Range	Level	Range
0	+50	+1 octave
	-50	-1 octave
1	+50	+1.5 octave
	-50	-1.5 octave
2	+50	+2 octave
	-50	-2 octave

Pitch Mod (Pitch Modulation)

Depending on how the LFO in WG modulation (p. 60) is set, the vibrato set here may have no effect at all.

LFOD (LFO Depth) CTRL

Sets the depth of LFO-1, that controls the WG pitch. Higher values deepen the effect.

Value: 0–100

Lever (Pitch Lever Modulation) CTRL

Sets the sensitivity of the vibrato depth controlled by the bender lever. Higher values deepen the effect.

Value: 0–100

After (Pitch Aftertouch Modulation) CTRL

This sets the sensitivity of the vibrato depth controlled by aftertouch. Higher values deepen the vibrato effect.

Value: 0–100

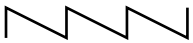
LFO (Low Frequency Oscillator)

The parameters of LFO-2 and LFO-3 can be set like LFO-1, except for a few parameters.

Wave (LFO Waveform) CTRL

Selects the waveform of the LFO.

Value: TRI, SAW, SQU, RND

Display	Waveform
TRI (Triangle)	
SAW (Sawtooth)	
SQU (Square)	
RND (Random)	Waveform changes randomly.

Rate (LFO Rate)

Sets the rate (frequency) of the LFO. Higher values quicken the rate.

Value: 0–100

Delay (Delay Time) CTRL

This sets the time needed for the LFO to appear, from the moment a key is pressed. Higher values increase the delay time.

Value: 0–100

Sync CTRL

Selects the timing of the LFO oscillation as follows. For LFO-2 and LFO-3, KEY cannot be selected.

Value: OFF, ON, KEY

Display	Description
OFF	LFO does not sync to the keyboard.
ON	When a key is played after all keys have been released, the LFO begins its wave generating process from the beginning.
KEY	LFO begins its wave generation from the beginning each time a new key is played.

EQ/CHORUS (Equalizer/Chorus)

EQ Edit (Equalizer)

In the equalizer section, the frequency characteristic of the sound can be modified. The Equalizer consists of the following parameters.

LowFreq (Low Frequency)

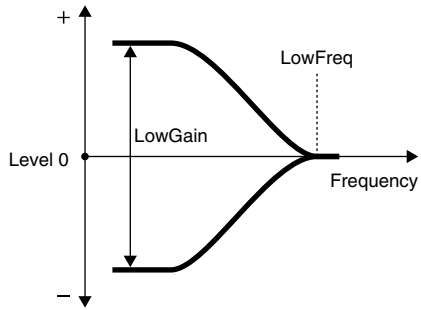
Sets the frequency where the gain is altered in the low to middle range.

Value: 63, 75, 88, 105, 125, 150, 175, 210, 250, 300, 350,\r420, 500, 600, 700, 840 Hz

LowGain (Low Gain) CTRL

Sets the gain of the lower frequencies. "**+**" settings raise the gain, and "**-**" settings lower it.

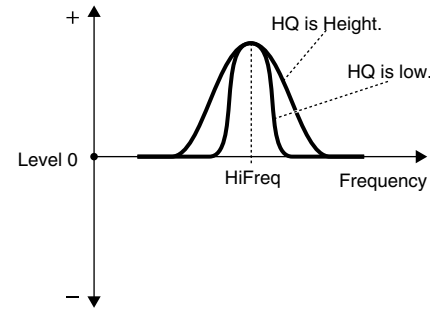
Value: -12–+12 dB



HiFreq (High Frequency)

Sets the frequency where the gain is altered in the middle to high range.

Value: 250, 300, 350, 420, 500, 600, 700, 840 Hz, 1.0, 1.2,\r1.4, 1.7, 2.0, 2.4, 2.8, 3.4, 4.0, 4.8, 5.7, 6.7, 8.0, 9.5 kHz



HiQ (High Q) CTRL

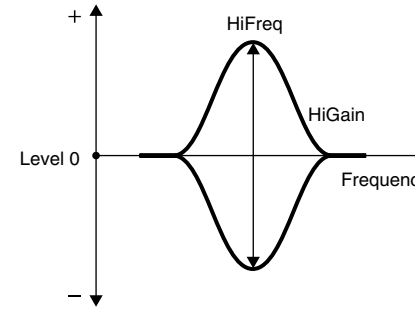
Sets the width of the frequency band where the gain is boosted or cut. With a higher value, the frequency band is narrower, and vice versa.

Value: 0.3, 0.5, 0.7, 1.5, 2.0, 3.0, 4.2, 6.0

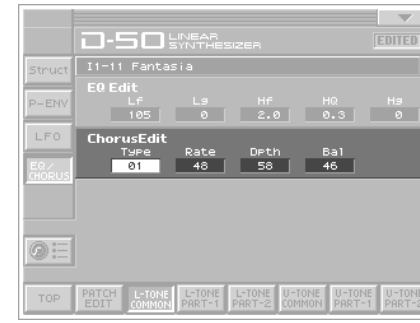
HiGain (High Gain) CTRL

Sets the gain of the Hf frequency. "**+**" settings raise the gain and "**-**" settings lower it.

Value: -12–+12 dB



Chorus Edit



Type (Chorus Type)

Selects one of the 8 basic chorus effects.

Value: 1–8

Display	Type
1	Chorus 1
2	Chorus 2
3	Flanger 1
4	Flanger 2
5	Feedback Chorus
6	Tremolo
7	Chorus Tremolo
8	Dimension

Rate (Chorus Rate) CTRL

Sets the rate of the chorus effect. Higher values quicken the rate.

Value: 0–100

Depth (Chorus Depth) CTRL

Sets the depth of the chorus effect. Higher values deepen the effect.

Value: 0–100

Balance (Chorus Balance) CTRL

This sets the volume balance of the chorus of the chorus sound and normal sound.

Value: 0–100

Value	Balance
100	Only the chorus sound is heard.
50	Chorus sound = Normal sound
0	Only the normal sound is heard.

Partial Parameters

Restriction of the available parameters caused by Structure

Depending on what **Structure** (p. 50) is used, the available parameters may be different.

1. Some parameters included in a Partial that uses a **PCM sound generator** are invalid. The PCM mark is shown when the parameters apply even for PCM sounds.
2. With **Ring Modulation**, some parameters in Partial 2 will automatically become the same as for Partial 1. Therefore, the values shown in the display are irrelevant with the actual values. The Ring mark is shown for such parameters.

<FORM>: (p. 57)
<PITCH>: (p. 59)
<TVF>: (p. 61)
<TVA>: (p. 66)
<MOD>: (p. 69)

WG Form (WG Waveform)

WG Form (Waveform)

Wave (Waveform) CTRL

Selects the waveform of the synthesizer sound generator.
Value: SQU, SAW

Display	Waveform
SQU (square)	
SAW (Sawtooth)	

* *A sawtooth waveform is produced by processing a square Waveform at the TVF, that is, all the waveform are square at WG even when a sawtooth is selected.*

PCM (PCM Wave Number) PCM CTRL

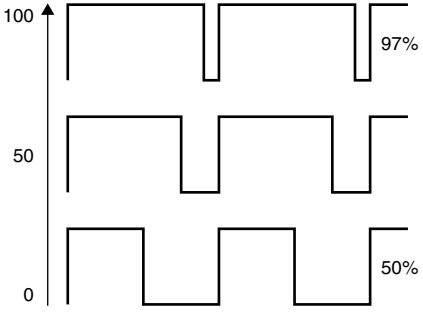
This selects one of the 127 different sampled waves of the PCM sound generator. (p. 86)
Value: 1–127

WG PW (WG Pulse Width)

PW (Pulse Width) CTRL

A square waveform has exactly the same width, up and down but a Pulse waveform has different widths. The ratio of upper width to lower is called pulse width. Depending on the set pulse width value, the harmonic content of the sound changes greatly.
Value: 0–100

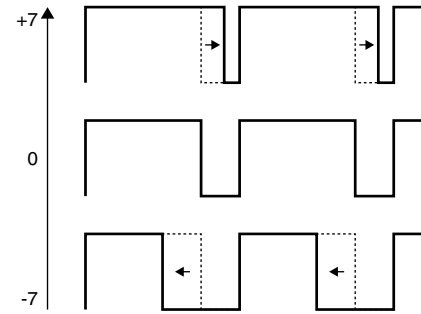
* *When a **sawtooth** is selected with **WG Waveform**, pulse width 50% raises the pitch by an octave.*



Velo (Velocity Range) CTRL

Sets the sensitivity of the velocity that controls the pulse width. With "**-**" values, the pulse width becomes smaller by playing the keyboard harder, and with "**+**" values, the pulse width becomes wider by playing the keyboard harder.

Value: -7–+7



After (Aftertouch Range) CTRL

Sets the sensitivity of the aftertouch that controls the pulse width. With "**-**" values, the pulse width becomes smaller with stronger aftertouch, and with "**+**" values, the pulse width becomes wider with stronger aftertouch.

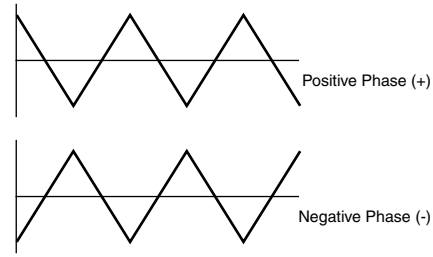
Value: -7–+7

LFO (LFO Select) CTRL

Pulse Width Modulation (PWM) means changing the pulse width periodically. LFO Select decides which of the LFO's is to be used for modulating the pulse width.

Value: +1, -1, +2, -2, +3, -3

Display	LFO (Phase)
+1	LFO-1 (+)
-1	LFO-1 (-)
+2	LFO-2 (+)
-2	LFO-2 (-)
+3	LFO-3 (+)
-3	LFO-3 (-)



LFOD (LFO Depth) CTRL

This sets the depth of the PWM. Higher values Deepen the effect.

Value: 0–100

WG PITCH

WG Pitch

Coars (Pitch Coarse) PCM CTRL

Sets the standard pitch of a Partial in semi-tone steps. The standard pitch is the pitch at C5 (middle C) key.

Value: C1–C7

Fine (Pitch Fine) PCM CTRL

The standard pitch can be altered over about +/- 50 cents.

Value: -50–+50

KF (Keyfollow (pitch)) PCM CTRL

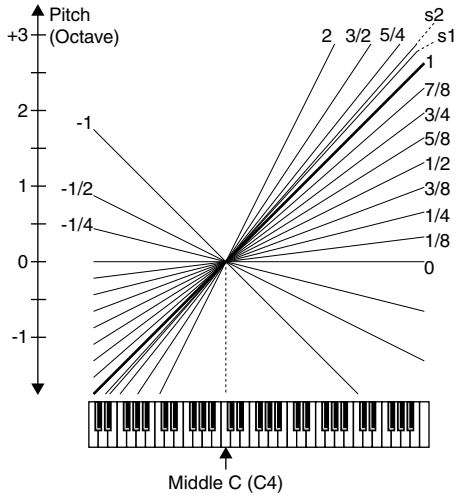
Usually, the keyboard to a synthesizer assigns a semi-tone to each key. This parameter can change the pitch ratio as show below. The value represents how many octaves are changed over 12 keys.

Value: -1, -1/2, -1/4, 0, 1, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2, s1, s2

* *s1 or s2 may be selected for slightly stretching octaves.*

s1: Pitch 1 cent higher than one octave.

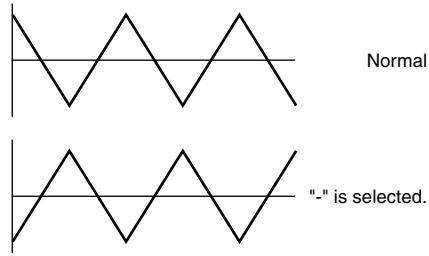
s2: Pitch 5 cents higher than one octave.



WG Mod (WG Modulation)

LFO (LFO Mode) PCM CTRL

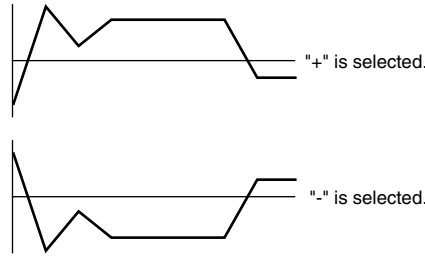
Selects one of the following four vibrato modes.
Value: OFF, (+), (-), A&L



Display	Description
OFF	No vibrato is obtained.
(+)	Vibrato is on.
(-)	Vibrato is on but inverted.
A&L	Vibrato can be obtained only by Aftertouch and Bender Lever.

ENV (P-ENV Mode) PCM CTRL

Selects one of the following three modes, determining how the pitch is controlled by P-ENV.
Value: OFF, (+), (-)



Display	Description
OFF	No alteration.
(+)	Pitch changes with the set P-ENV curve.
(-)	Pitch changes with the P-ENV curve inverted.

Bend (Bender Mode) PCM

Selects how the pitch is controlled by the bender lever as follows.
Value: OFF, KEY, NOM

Display	Description
OFF	No pitch alteration by moving the lever right or the left.
KF	Pitch changes within the Bender range, set in Patch Factors, plus Keyfollow (Pitch) of WG.
NOM	Pitch changes within the Bender range, set in Patch Factors.

Bender Mode Example:

- If the Bender range is set to 12 (1 octave), and the Keyfollow (Pitch) of WG is set to 2, the maximum pitch change caused by moving the Bender Lever is 2 octaves.
- When the Keyfollow (Pitch) of WG is set to zero, there is no pitch change caused by the Bender lever.

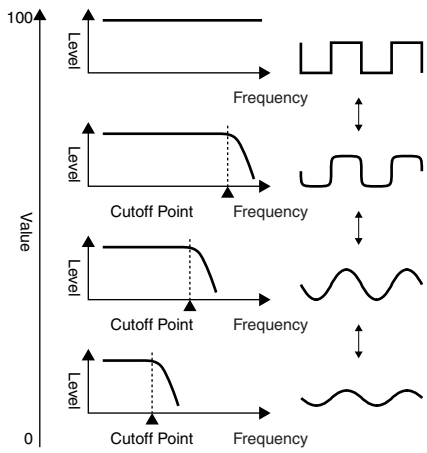
TVF (Time Variant Filter)

TVF

Freq (Cutoff Frequency) CTRL

Sets the cutoff point of the TVF. As you lower the value, higher frequencies are removed and the waveform gradually become an approximation of a sine wave, then the sound will finally fade out.

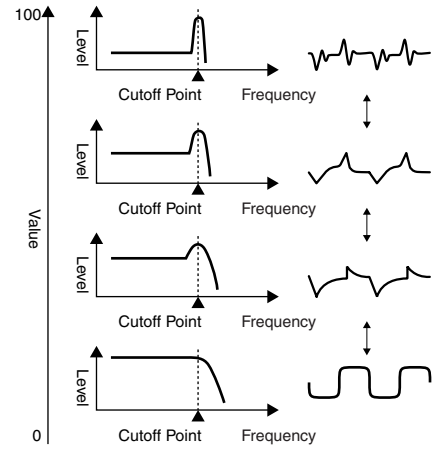
Value: 0–100



Reso (Resonance) CTRL

Boosts the cutoff point. As you increase the value, specific harmonics are emphasized and the sound will become more unusual, more electronic in nature.

Value: 0–30



KF(Keyfollow (Cutoff Point)) CTRL

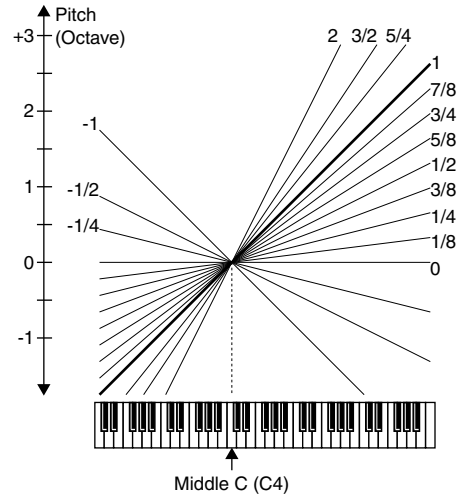
Keyfollow can change the cutoff point depending on the key played. Just like the Keyfollow of WG pitch, the value represents how many octaves change over 12 keys.

Value: -1, -1/2, -1/4, 0, 1, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2

BP (Bias Point) CTRL

You can add a further change (= bias level) to the Keyfollow curve, and set the range (bias direction) where the bias level is valid. The bias range is where the bias level is valid on the keyboard. It can be set with the **bias point** (where the bias range begins) and **bias direction** (< or >).

Value: <A1–<C7, >A1–>C7



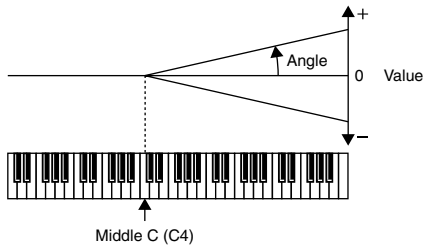
Display Example	Example Function
>C4	The bias level is only valid on the keyboard above the C4 key.
<C4	The bias level is only valid on the keyboard below the C4 key.

BLevel (Bias Level) CTRL

The bias level can be set. "**+**" values raise the curve, and "**-**" value lower the curve.

Value: -7–+7

Keyfollow Adjustment



The curve in the picture represents the Keyfollow value with the bias level added.

- **TVF Keyfollow (Cutoff Point):** 0
- **Bias Direction:** >C4

TVF ENV (TVF Envelope)

Depth (ENV Depth) CTRL

Sets the depth of the TVF ENV modulation that changes the TVF cutoff Point. Higher values deepen the effect.

Value: 0–100

Velo (Velocity Range) CTRL

Sets the sensitivity of the velocity than controls the depth of the TVF ENV. At higher values, the effect is deeper by playing harder.

Value: 0–100

DKF (Keyfollow (Depth)) CTRL

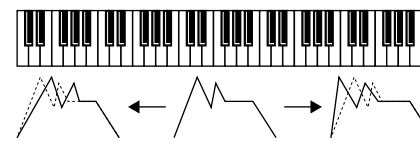
This can change the TVF ENV depth depending on the key played. Higher values change the depth more drastically.

Value: 0–4

TKF (Keyfollow (Time)) CTRL

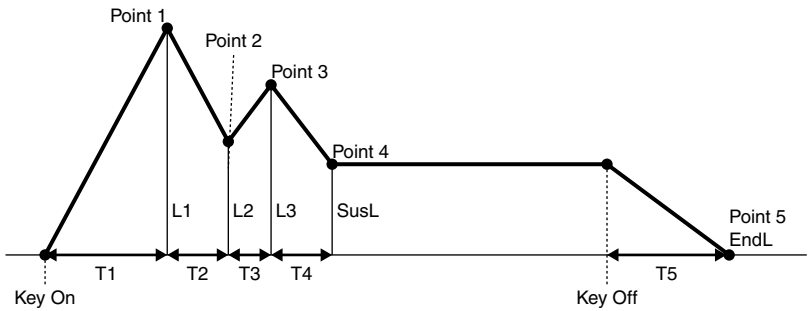
This can change the time of the TVF ENV depending on the key played. Higher values change the time more drastically.

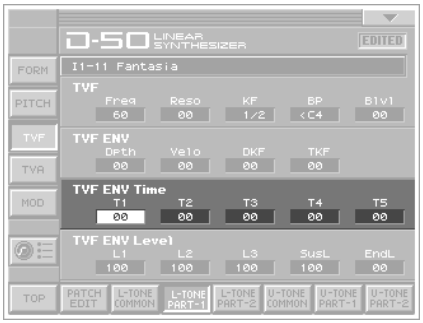
Value: 0–4



TVF ENV Time

An envelope curve is determined by times and levels.





T1 (Time 1) CTRL

Sets the time needs to reach point 1 from the moment the key is pressed.

Value: 0–100

T2 (Time 2) CTRL

Sets the time needed to reach point 2 from point 1.

Value: 0–100

T3 (Time 3) CTRL

Sets the time needed to reach point 3 from point 2.

Value: 0–100

T4 (Time 4) CTRL

Sets the time needed to reach point 4 from point 3.

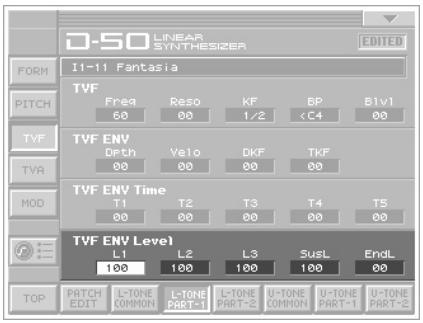
Value: 0–100

T5 (Time 5) CTRL

Sets the time needed to reach point 5 from the moment the key is released.

Value: 0–100

TVF ENV Level



L1 (Level 1) CTRL

Sets the of point 1.

Value: 0–100

L2 (Level 2) CTRL

Sets the level of point 2.

Value: 0–100

L3 (Level 3) CTRL

Sets the level of point 3.

Value: 0–100

SusL (Sustain Level) CTRL

This sets the level of point 4.

Value: 0–100

EndL (End Level) CTRL

To lower the level after releasing the key, set this to 0, and to raise the level, set it to 100.

Value: 0, 100

* *The End Level is retained until you release and play the key again.*

* *If the Levels of two adjacent points are set to similar values, the time between these two points may prove to be shorter than what is actually set, or even zero.*

TVA (Time Variant Amplifier)

TVA

Level PCM CTRL

Sets the volume of a Partial. Higher values may cause sound distortion. If so, lower the value. Even when the Level is set to zero here, the sound may not be completely muted if the TVA ENV curve is high.

Value: 0–100

Velo (Velocity Range) PCM CTRL

Sets the sensitivity of the velocity that controls the volume of the sound. "**-**" values lower the level by harder playing, and "**+**" values raise the level by harder playing.

Value: -50–+50

BP (Bias Point) PCM CTRL

You can change the overall volume of the keyboard (= bias level) from the set level, and set the range (bias direction) where the bias level is valid.

This bias range is where the bias level is valid on the keyboard. It can be set with the bias point (Where he bias range begins) and bias direction (< or >).

Value: <A1–<C7, >A1–>C7

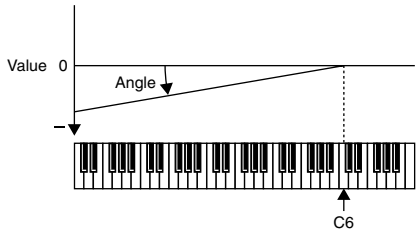
Display Example	Function Example
>C4	The bias level is only valid on the keyboard above the C4 key.
<C4	The bias level is only valid on the keyboard below the C4 key.

BLevel (Bias Level) PCM CTRL

The curve (bias level) can be set. Lower values make the curve steeper.

Value: -12–0

Volume Adjustment



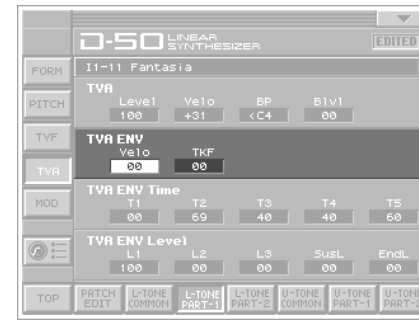
- **Bias Point:**>C6

TVA ENV (Envelope)

Velo (Velocity Follow (Time 1)) PCM CTRL

Sets the sensitivity of the velocity than controls the Time 1 of the TVA ENV. Increasing the sensitivity shortens Time 1, by stronger playing.

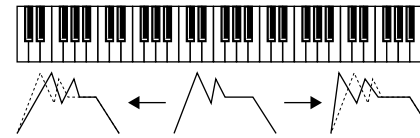
Value: 0–4



TKF (Keyfollow (Time)) PCM CTRL

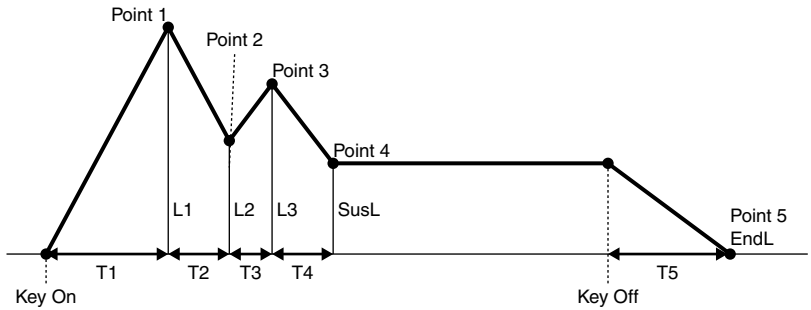
This can change the time o the TVA ENV depending on the key played. 0 to 4 are valid. Higher values change the time more drastically.

Value: 0–4



TVA ENV Time

An envelope curve is determined by times and levels.



T1 (Time 1) PCM CTRL

Sets the time needed to reach point 1 from the moment the key is pressed.

Value: 0–100

T2 (Time 2) PCM CTRL

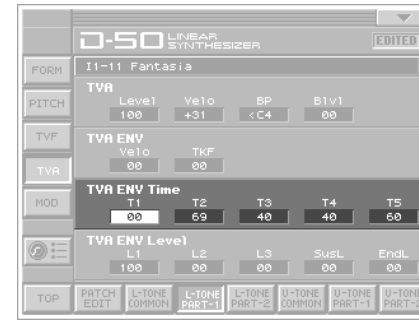
Sets the time needed to reach point 2 from point 1.

Value: 0–100

T3 (Time 3) PCM CTRL

Sets the time needed to reach point 3 from point 2.

Value: 0–100



T4 (Time 4

Sets the time needed to reach point 4 from point 3.

Value: 0–100

T5 (Time 5) PCM CTRL

Sets the time needed to reach point 5 from the moment the key is released.

Value: 0–100

TVA ENV Level

L1 (Level 1) PCM CTRL

Sets the level of point 1.

Value: 0–100

L2 (Level 2) PCM CTRL

Sets the level of point 2.

Value: 0–100

L3 (Level 3) PCM CTRL

Sets the level of point 3.

Value: 0–100

SusL (Sustain Level) PCM CTRL

Sets the level of point 4.

Value: 0–100

EndL (End Level) PCM CTRL

To lower the level after releasing the key, set this to 0, and to raise the level, set it to 100.

Value: 0, 100

* *The End Level remains until the key is released and played again. That is, at a value of 100, the sound remains. However, the PMC Sound Generator's One-shot sounds do not remain even when set to 100.*

* *If the levels of two adjacent points are set to similar values, the time between these two points may prove to be shorter than what is actually set, or even zero.*

MOD (Modulation)

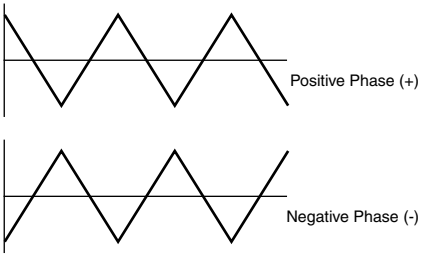
TVF MOD

LFO (LFO Select) CTRL

Selects the LFO that changes cutoff point periodically (creating growl effects).

Value: +1, -1, +2, -2, +3, -3

Display	LFO (Phase)
+1	LFO-1 (+)
-1	LFO-1 (-)
+2	LFO-2 (+)
-2	LFO-2 (-)
+3	LFO-3 (+)
-3	LFO-3 (-)



LFOD (LFO Depth) CTRL

Sets the depth of a growl effect. Higher values deepen the effect.

Value: 0–100

After (Aftertouch Range) CTRL

Sets the sensitivity of the aftertouch that controls the cutoff point. "**-**" values lower the cutoff point by stronger Aftertouch, and "**+**" values raise it.

Value: -7–+7

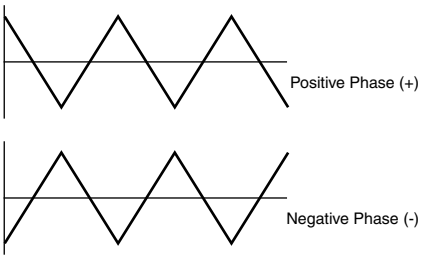
TVA MOD

LFO (LFO Select) PCM CTRL

Selects the LFO that changes the volume periodically (tremolo effects) .

Value: +1, -1, +2, -2, +3, -3

Display	LFO (phase)
+1	LFO-1 (+)
-1	LFO-1 (-)
+2	LFO-2 (+)
-2	LFO-2 (-)
+3	LFO-3 (+)
-3	LFO-3 (-)



LFOD (LFO Depth) PCM CTRL

Sets the depth of the tremolo effect. Higher values deepen the effect.

Value: 0–100

After (Aftertouch Range) PCM CTRL

Sets the sensitivity of the aftertouch that controls the volume. "**-**" values lower the volume by stronger aftertouch. And "**+**" values increase the volume by stronger aftertouch.

Value: -7–+7

Settings for the Entire VC-1

Settings that affect the entire operating environment of the VC-1, such as tuning and MIDI message reception, are referred to as **System functions**. This section explains how to make settings for the System functions and describes the functions of the different System parameters.

How to Make the System Function Settings

1. Press **[MODE]**. The **MODE MENU** window appears.
2. Touch **<SYSTEM>**. The **SYSTEM** screen appears.

3. Move the cursor to the value box of that parameter. Then modify the value by either turning the **VALUE dial** or pressing **[INC/+]** or **[DEC/-]**.
4. Repeat steps 3 to make the settings for the System function.
5. After you have edited the settings of the System function, touch **<Write>**, located in the lower right of the screen.

* *Changes you make to the System function settings are only temporary—they will be discarded as soon as the power is turned off. If you want to keep any changes you've made in the system settings, you must save them in VC-1. When you perform the save procedure, the data that previously occupied the save destination will be lost. However, the factory setting data can be recovered by performing the Initialization procedure. (Factory Reset; p. 28)*

Sound Setting

Master Tune

Adjusts the overall tuning of the VC-1. The display shows the frequency of the A4 note (center A).

Value: 427 – 452 Hz

Sound Character

Sets whether the output characteristics of the sound are the same as those of the D-50 (D-50) or the V-Synth XT (V-Synth).

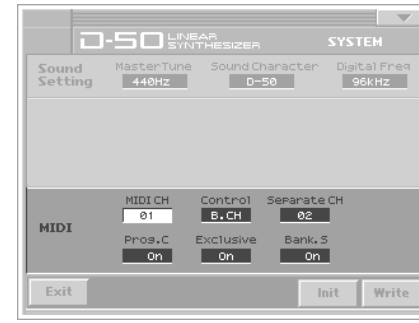
Value: D-50, V-Synth

Digital Freq (Digital Frequency)

Sets the sampling frequency of the digital output.

Value: 44.1, 48, 96 kHz

MIDI



MIDI CH (MIDI Channel)

Sets the **Basic Channel** (MIDI channel on which the VC-1 receives and transmits messages).

Value: 1 – 16

* *The transmit change can be set to a different number from the Basic Channel individually from each Patch (p. 25).*

Control

Determines how to receive messages from an external MIDI device. (**"Key Mode Alteration"** (p. 76))

Value: B.CH, G.CH, MdeOFF

Display	Function
B.CH (Basic Channel mode)	When the VC-1 is being controlled in Mono mode, it receives the Voice massages (except for Note Event, Pitch Bender) on the Basic Channel from the external device.
G.CH (Global Channel mode)	When the VC-1 is being controlled in Mono mode, by an external device that has a Global Channel (one number smaller than the basic channel) it can receive all the Voice massages (except for Note Event, Pitch Bender) On the Global Channel.
MdeOFF (Mode Message OFF mode)	In this mode, the VC-1 does NOT receive the Mode massages from the external MIDI device, but is assigned to the Key mode as set on the VC-1.

SeparateCH (Receive Channel in Separate Mode)

When **SEP** (Separate Mode) or **SEP-S** (Separate Solo Mode) is selected, the Upper and Lower Tones can be controlled on different channels. The Lower Tone is controlled by the basic channel, and the Upper Tone is controlled by the receive channel set here. The MIDI keyboard can control only the Upper Tone.

Value: 1 – 16

* *The receive channel of each Patch can be set to a different number from the channel set here. (p. 25)*

Prog.C (Program Change Switch)

To receive or transmit Program Change messages, set this to **On**.

Program Change messages are transmitted only when a Patch is selected by operating the V-Synth XT's panel buttons, or when the Program Change number to be transmitted is altered also on the V-Synth XT's panel. IN other words, Program Change messages are not transmitted by patch selection with the Program Change messages sent from an external MIDI device.

Value: Off, On

* *The Program Change Number of each Patch can be set to a different number from the number set here. (p. 25)*

Exclusive (Exclusive Switch)

To receive or transmit Exclusive messages (Roland ID Number only), set this to **On**, **P-Dump** or **TxEdit**.
Value: Off, On, P-Dump, TxEdit

Display	Function
On	Normally.
P-Dump	The patch data that you select is transmitted.
TxEDIT	The parameter data that you edited is transmitted.

* *When set to **P-Dump**, the Patch you select is transmitted to an external device. However, it cannot be transmitted by Patch Shift with the pedal switch, or by patch selection with the Program Change messages sent from an external device.*

Bank.S (Bank Select Switch)

To receive or transmit Bank Select messages, set this to **On**.
Value: Off, On

Initializing the System Settings

The current settings of the system functions can be restored to a set of standard settings, or to the factory settings (System Initialize).

1. Access the System Edit screen.
2. Touch **<Init>**, located in the lower right of the screen.
3. If you want the factory settings to be in effect the next time the VC-1 is powered up, touch **<Write>** to save the settings.

Key Mode Alteration

Poly Mode or Mono Mode is an element that determines how to output the Upper and Lower Tones.

Mono Mode, Poly Mode

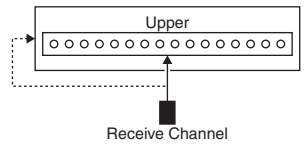
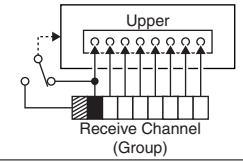
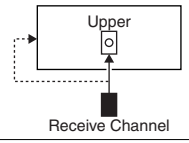
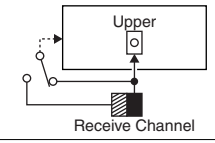
There are two ways of the The VC-1 can use either mode.

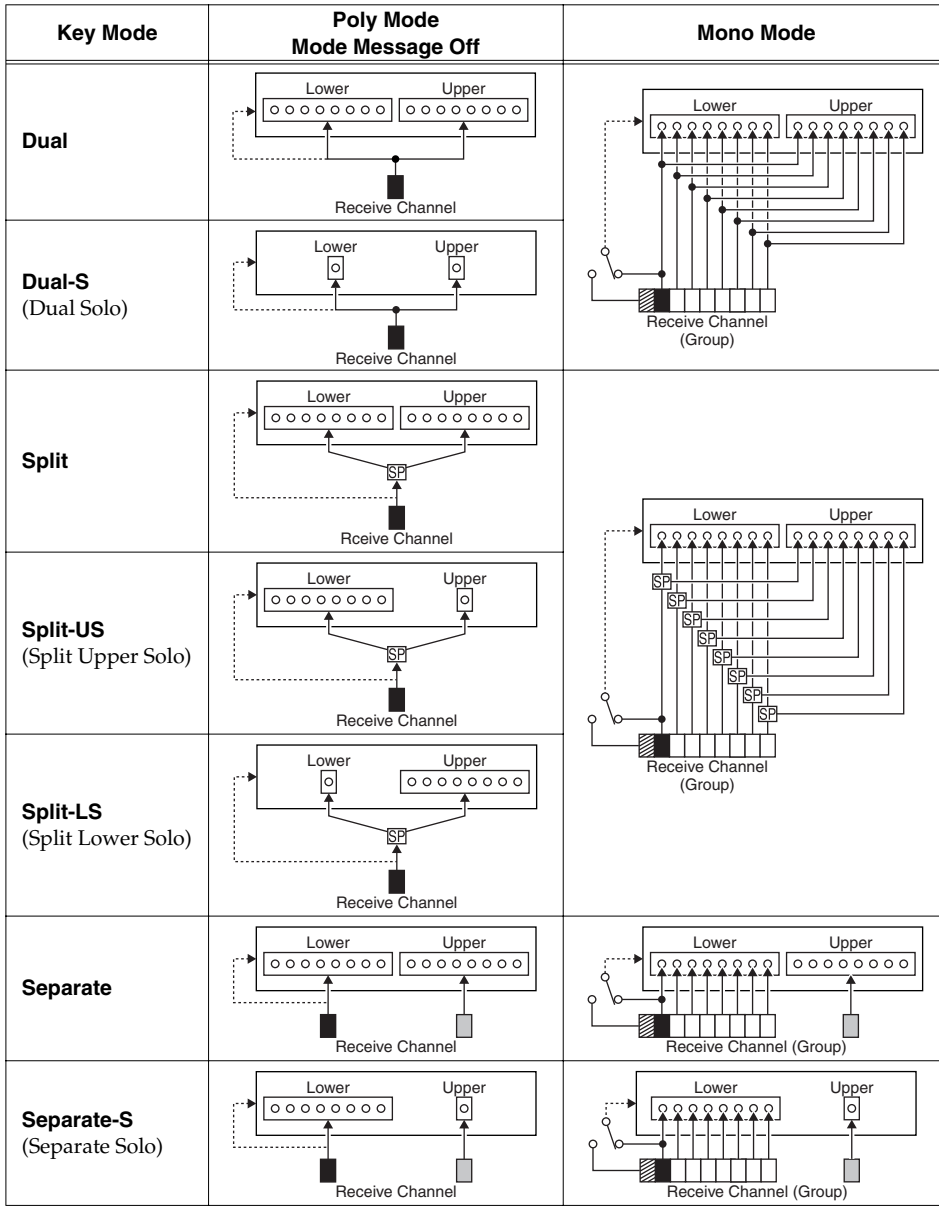
Name	Functions
Poly Mode	Allows the control of more than one Key message on one channel at a a time. The VC-1 is 16 or 8 voices polyphonic (depending on the patch used). So the Poly Mode can be used the VC-1 is controlled by a keyboard or sequencer.
Mono Mode	Allows only one MIDI massage on one channel. The VC-1 is 8 voices polyphonic using 8 MIDI channels. The Mono mode is ideal for a MIDI Guitar System (GR-33, GR-20, etc.) hat has Mono mode, and transmits the messages of each string separately on a different channel. In the other words, Mono mode makes it possible to reproduce guitar sounds without spoiling the natural characteristics of the instrument.

Select Poly or Mono mode depending on the type of Mode Message sent from the external MIDI device. When Mono mode messages are received by the VC-1, the messages can now be received on a channel group (= eight consecutive MIDI channels, the basic channel being the lowest number).

* *The Mono mode of the VC-1 allows it to receive only the note and bender messages for each channel, therefore it is NOT possible to set a different sound for each note separately.*

When the VC-1 is being controlled by an external MIDI device, the Key mode selected in each Patch affects how the Tones are played and how the control messages run as shown in the following pictures.

Key Mode	Poly Mode Mode Message Off	Mono Mode
Whole		
Whole-S (Whole Solo)		



: Program Change Message

SP : Split Point

: Number of Voices

: Basic Channel

: Global Channel

: Receive Channel in Separate Mode

Sound List

Preset Patches

P1 (Preset 1:Original D-50)

	No.1	2	3	4	5	6	7	8
BANK 1	Fantasia (D)	Metal Harp (D)	Jazz Guitar Duo (D)	Arco Strings (D)	Horn Section (D)	Living Calliope (D)	D-50 Voices (D)	Slow Rotor (D)
2	Digital Native Dance (D)	Bass Marimba (D)	Flute-Piano Duo (D)	Combie Strings (D)	Harpsichord Stabs (D)	Griitttarr (D)	Nylon Atmosphere (D)	Synthetic Electric (D)
3	Breathy Chiffer (D)	Gamelan bell (D)	Slap Bass (D)	Pressure Me Strings (D)	Rich Brass (D)	Pipe Solo (D)	Soundtrack (D)	Cathedral Organ (D)
4	Shamus Theme (D)	Vibraphone (D)	Basin Strat Blues (S)	Pizzagogo (D)	Flutish Brass (D)	Pressure Me Lead (D)	Spacious Sweep (W)	Piano-Fifty (D)
5	Glass Voices (D)	Hollowed Harp (D)	Ethnic Session (D)	Jete Strings (D)	Stereo Polysynth (D)	Tine Wave (D)	Syn-Harmonium (W)	Rock Organ (D)
6	Staccato Heaven (D)	Oriental Bells (D)	E-Bass and E-Piano (S)	Legato Strings (D)	JX Horns-Strings (D)	Shakuhachi (D)	Choir (D)	Picked Guitar Duo (D)
7	Nightmare (D)	Syn Marimba (D)	Slap Bass n Brass (S)	String Ensemble (D)	Velo-Brass (W)	Digital Cello (D)	OK Chorale (D)	Pianissimo (D)
8	Intruder FX (D)	Steel Pick (D)	Synth Bass (D)	Afterthought (D)	Bones (D)	Bottle Blower (D)	Future Pad (D)	PCM E-Piano (D)

P2 (Preset 2: New)

	No.1	2	3	4	5	6	7	8
BANK 1	Brass Tacks (D)	A Bright Day (D)	Soft EPicenter (D)	Next Stop Nirvana (D)	Pressure Dome (D)	Hard Whoover (D)	Digital Clavi (D)	Chasing Game (D)
2	Stereo EP (D)	FM E-Piano (D)	Curly Wurly (D)	End of the 7 Era (D)	Christmas Time (D)	Good Vibrations (D)	Fairy Ultra (D)	Thoughts (D)
3	Music Box (W)	Happy Toy (D)	Space Harp (D)	Wonder Drops (D)	Pluck the Pad (D)	Long Dream (D)	Late 80s Stack (D)	Gin Fizz (D)
4	Perc Piper (D)	Space Rays (D)	Tandorri Bells (D)	I saw the light (D)	Future is Behind (D)	Bow Street Runner (D)	Tension Sheet (D)	D1080 Pad (D)
5	Atmostrings (D)	Waving Strings (D)	Organic Strings (D)	Megatronic (D)	PhotonPhasers (D)	Soft Whoover (D)	LA Supersaw (D)	Dance Choir (D)
6	Rusty Voices (D)	Solo X Press (D)	Daft Lead (W)	Back 2 Mono (D)	Mono Octabass (W)	Gated FM bass (D)	Acid Bass (W)	Rubber Bass (D)
7	Purr-Phunk (D)	Atmo Bass (D)	Zawco Brass (D)	D-50 Syn Brass (D)	Ambient Hit (D)	12str Guitar (D)	Darjiling (D)	Realistic Flute (D)
8	PiccoBello (D)	Qatsi Organ (D)	Sunken Cathedral (D)	Sorcerers Organ (D)	Voice of Elohim (D)	Sun Safari (D)	Musique Concrete (D)	Jurassic Breath (D)

P3 (Preset 3:PN-D50-01)

	No.1	2	3	4	5	6	7	8
BANK 1	Bouncing Bows (D)	Deep Analog Strings (D)	Psycho Strings (D)	Warm Strings (D)	Deep Strings Ensemble (D)	Symphony Strings (D)	Chase Strings Ensemble (D)	Baroque Strings (D)
2	Cello (D)	Viola (D)	Solo Violin (D)	Contra Bass (D)	Choir & Strings (D)	Harpsi Strings (D)	Horns & Strings (D)	Pulse Pad (D)
3	Classical Horn (D)	Fanfare (D)	Tuba (W)	Velo-Brass 2 (W)	Stab Brass (D)	Mallet Horns (D)	Slow Brass Sweep (D)	Slappin Brass (D)
4	Tenor Saxophone (D)	Alto Saxophone (D)	Soprano Saxophone (D)	E-Piano & Sopranino (S)	Wild Blow (D)	Squeeze de Sax (W)	Harmonica (W)	Whistling Soldiers (S)
5	Flute-Piccolo (D)	Oboe (D)	Bassoon (D)	Clarinet (D)	Ocarina (W)	Breathing Pipe (D)	Calliope (D)	Wabi Sabi (D)
6	Synth Lead 1 (D)	Synth Lead 2 (W)	Griitttarr 2 (D)	5th Lead Synth (W)	Analog Solo (D)	Synth Lead 3 (W)	Gotham Low (W)	Taj Mahal (D)
7	Ham and Organ (D)	Slow Rotor 2 (D)	Slow to Fast Rotor (D)	Good & Old Days (W)	Percussive E-Organ (D)	Slap Bass & Organ (S)	Pipe Organ (W)	Weird Organ (D)
8	Star Peace Chorus (D)	Spacy Voice (D)	Thinful (D)	Vox Harmonium (D)	Android (D)	Nuns (D)	Pressure Pad (D)	Digital Sound (D)

P4 (Preset 4:PN-D50-02)

	No.1	2	3	4	5	6	7	8
BANK 1	Synthetic Piano 1 (D)	Upright Pianer (D)	Loud Piano (D)	Tack Piano (D)	Synthetic Piano 2 (W)	High Piano (D)	Two Part Invention (D)	Harpsichord Coupler (W)
2	Electric Piano (D)	Xmod Attack E-Piano (W)	Harmonic E-Piano (D)	Reluctant E-Piano (D)	Tines (D)	Old Clav (W)	Painful Clav (D)	Flanging Clav (D)
3	Guitar Frets (D)	Jazz Guitar (W)	Spanishart (D)	Acoustic Guitar Box (D)	Harp (W)	Koto (D)	Sitar (D)	Hawaiian Palms (S)
4	Marimba (D)	Xylophone (D)	Glockenspiel (W)	Jamaican Steel (D)	Perc AAAH (D)	Tremolo Brass Bells (D)	ISIS (D)	Xylo Gate (W)
5	Samba Drum & Agogo (S)	Drums Set 1 (S)	Drums Set 2 (S)	Percussion Set 1 (S)	Gron Percussion (D)	Bell Tree (W)	Serrengetti (D)	Bellocell (D)
6	Fingered Bass (D)	Slap Bass 2 (D)	Slap It (D)	Picked Bass (D)	Fretless Bass (D)	Acoustic Bass (D)	Synth Bass 2 (D)	Slap Bass & Syn Bass (S)
7	Stringz & Bellz (D)	Bright Wave (D)	Gotham Chords (D)	Wonderwave (D)	Gamelan Bells 2 (D)	Ethnic Fifth (W)	Japanese Duo 1 (S)	Japanese Duo 2 (S)
8	AQUA (D)	Jet Wars (S)	Orchestra Hit (D)	Clock Factory (D)	Gunfire-Ricochet (D)	Fast Forward (W)	Air Raid Siren (D)	Sweep Loop on C (D)

P5 (Preset 5:PN-D50-03)

	No.1	2	3	4	5	6	7	8
BANK 1	String Section (D)	Syn-Strings Hi (D)	Tension Strings (D)	Planetary Strings (D)	Symphony Orchestra (D)	Analog Syn-Strings (D)	Crescendo Strings (D)	Warm Strings Pad (D)
2	Vibrato Cello (D)	String Quartette (D)	Pizz Typewriter (D)	Strings Horn (D)	Strings Elec Piano (D)	High-Strings Oboe (D)	Cello-Viola Piccolo (D)	Bass-Piano Strings (D)
3	Powerful Brass (D)	Mute Trumpet (W)	Westerly Brass (D)	Flugel Horn (D)	Eye Brasspad (D)	Trumpetters (D)	Pressure 5th Horns (D)	Pianish Horns (D)
4	Baritone Saxophone (D)	Silver Saxophone (D)	Saxcessive Tones (D)	Synthesized Sax (W)	Growl Saxophone (D)	Sopranino Sax (D)	Xarmonica (W)	Happy Whistler (D)
5	Breathy Flute (D)	Bohemian (D)	Recorder (D)	Breeze Pipe (D)	Flutes Ensemble (D)	Woodwinds (S)	Pipe Bags (D)	Vibe n Clarinet (S)
6	Heavy Metal Lead (D)	Monophonic Lead (D)	Pulse Lead (W)	Squeeze Lead (D)	Energetical Lead (D)	Monotone Lead (D)	Harmonics Lead (D)	Metallic Lead (D)
7	Jazz Organ (D)	Huge Pipes (D)	Velocity Rotor (D)	Choral Organ (D)	Click Organ (D)	Solid Beat (D)	Wavy Motion (D)	Pressure Generator (D)
8	Whispy Vox (D)	Alpha Omega Ensemble (D)	Vox n Sawz (D)	4th Synth Vox (D)	Husky Voices (D)	Stereo Panorama (D)	Voyageur (D)	Glass Voice 2 (D)

P6 (Preset 6:PN-D50-04)

	No.1	2	3	4	5	6	7	8
BANK1	Perc E-Piano (D)	Ballad Piano Choir (D)	New Age Piano (D)	Xmod E-Piano (W)	Vividly Piano (D)	Air Piano (D)	Honky-Tonk Piano (D)	Antique harpsichord (D)
2	Spanish Guitar (D)	Ringmod E-Guitar (D)	Gypsy Guitar (D)	Rock Guitar (D)	Harp Strings (D)	Dulcimer Voice (D)	Comdie Clav (D)	Stereo Clav (D)
3	Toys in the Attic (D)	Music Toybox (D)	Bells Harmony (D)	Star Chime (D)	African Kalimba (D)	Okinawa Session (S)	Jamaican Sounds (D)	India (S)
4	Sweet Vibes (D)	Clear Bell Pad (W)	Marimbell (D)	Venetian Cafe (S)	Grand Canyon (S)	Funky Bed Trax (S)	Ohayashi (S)	Koto-Bamboo Flute (S)
5	Digital Atmosphere (W)	Polyphonic Synth (S)	Pad Combo (D)	Attack-Reso Synth (D)	Velo-Oct Pulse (D)	Perc Release (D)	Steam Synth Pad (D)	Zean- - - (D)
6	Hopper Bass (D)	Electric Pick Bass (D)	Octave Synth Bass (D)	Natural Bass (D)	Glide Bass (D)	Funky Reso-Bass (D)	Steelblue Bass (D)	Funky Cutting (S)
7	Soundtrack n Hold (D)	Reso Release (D)	Ballet Voices U-L (D)	Press Pan sampl Hold (D)	Twilight Zone (D)	After Bend-Panning (D)	All Diminish Chord (D)	STAR-TREK Voices (D)
8	Marshy Zone (D)	Dense Forest (D)	F-1 Grand Prix (D)	Passing Sky (D)	Devildom (S)	Haunted Bells (D)	Vietnam FX (S)	Big Waves (D)

Patch Factors

Patch Factors		Value	Comment	
PATCH TOP (p. 19)				
Chase Switch	Chase Switch	OFF, ON		
Portament Switch	Portamento Switch	OFF, ON		
KEY MODE	Key Mode	WHOLE, DUAL, SPLIT, SEP, WHOL-S, DUAL-S, SPL-US, SPL-LS, SEP-S		
SPLIT	Split Point	C2 – C7		
BALANCE	Tone Balance	0 – 100		CTRL
CONTROL (p. 21)				
Bend	Bender Range	0 – 12		CTRL
AfterPB	Aftertouch Bend Range	-12 – +12		CTRL
Hold	Hold Mode	U, L, UL		
Time	Portamento Time	0 – 100		CTRL
Mode	Portamento Mode	U, L, UL		CTRL
OUTPUT (p. 22)				
Mode	Output Mode	1 – 4		
RevType	Reverb Type	1 – 32		
Revbal	Reverb Balance	0 – 100		CTRL
Vol	Total Volume	0 – 100		CTRL
CHASE (p. 24)				
Mode	Chase Mode	UL, ULL, ULU		
Level	Chase Level	0 – 100		CTRL
Time	Chase Time	0 – 100		CTRL
TONE TUNE (p. 25)				
LKey	L-Tone Key Shift	-24 – +24		CTRL
UKey	U-Tone Key Shift	-24 – +24		CTRL
Ltune	L-Tone Fine Tune	-50 – +50		CTRL
Utune	U-Tone Fine Tune	-50 – +50		CTRL
MIDI (p. 25)				
TxCH	Transmit CH	B, 1 – 16		
TxPC	Transmit Program Change	Off, 1 – 100		
TxBS	Transmit Bank Select	Off, 0 – 99	VC-1	
SepCH	Separate Mode Receive CH	Off, 1 – 16		

Tone Parameters

Common Parameters

Parameter			Value	Comment	
Struct (p. 50)					
Structure	Struct	Structure	1 – 7		
Partial Balance	Balance	Partial Balance	0 – 99	VC-1	CTRL
P-ENV (p. 51)					
P-ENV	Velo	Velocity Range	0 – 2		CTRL
	TKF	Time Keyfollow	0 – 4		CTRL
P-ENV Time	T1	Time1	0 – 50		CTRL
	T2	Time2	0 – 50		CTRL
	T3	Time3	0 – 50		CTRL
	T4	Time4	0 – 50		CTRL
P-ENV Level	L0	Level0	-50 – 50		CTRL
	L1	Level1	-50 – 50		CTRL
	L2	Level2	-50 – 50		CTRL
	SusL	Sustain Level	-50 – 50		CTRL
	EndL	End Level	-50 – 50		CTRL
Pitch Mod	LFOD	LFO Depth	0 – 100		CTRL
	Lever	Pitch Lever Modulation	0 – 100		CTRL
	Aftr	Pitch Aftertouch Modulation	0 – 100		CTRL
LFO (p. 53)					
LFO-1	Wave	Waveform	TRI, SAW, SQU, RND		CTRL
	Rate	Rate	0 – 100		CTRL
	Delay	Delay Time	0 – 100		CTRL
	Sync	Sync.	Off, On, KEY		CTRL
LFO-2	Wave	Waveform	TRI, SAW, SQU, RND		CTRL
	Rate	Rate	0 – 100		CTRL
	Delay	Delay Time	0 – 100		CTRL
	Sync	Sync.	Off, On		CTRL
LFO-3	Wave	Waveform	TRI, SAW, SQU, RND		CTRL
	Rate	Rate	0 – 100		CTRL
	Delay	Delay Time	0 – 100		CTRL
	Sync	Sync.	Off, On		CTRL

Parameter			Value	Comment	
EQ/Chorus (p. 54)					
EQ	LowFreq	Low Frequency	63, 75, 88, 105, 125, 150, 175, 210, 250, 300, 350, 420, 500, 600, 700, 840		
	LowGain	Low Gain	-12 – 12		CTRL
	HiFreq	High Frequency	250, 300, 350, 420, 500, 600, 700, 840, 1.0, 1.2, 1.4, 1.7, 2.0, 2.4, 2.8, 3.4, 4.0, 4.8, 5.7, 6.7, 8.0, 9.5		
	HiQ	High Q	0.3, 0.5, 0.7, 1.0, 1.4, 2.0, 3.0, 4.2, 6.0		CTRL
	HiGain	High Gain	-12 – 12		CTRL
Chorus	Type	Chorus Type	1 – 8		
	Rate	Chorus Rate	0 – 100		CTRL
	Depth	Chorus Depth	0 – 100		CTRL
	Balance	Chorus Balance	0 – 100		CTRL

Partial Parameters

Parameter			Value	Comment	
FORM (p. 57)					
WG Form	Wave	Waveform	SQU, SAW		CTRL
	PCM	PCM Wave No.	1 – 127	PCM	CTRL
WG PW	PW	Pulse Width	0 – 100		CTRL
	Velo	Velocity Range	-7–+7		CTRL
	After	Aftertouch Range	-7–+7		CTRL
	LFO	LFO Select	+1, -1, +2, -2, +3, -3		CTRL
	LFOD	LFO Depth	0 – 100		CTRL
PITCH (p. 59)					
WG Pitch	Coars	Coarse	C1 – C7	PCM	CTRL
	Fine	Fine	-50–50	PCM	CTRL
	KF	Keyfollow	-1, -1/2, -1/4, 0, 1, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2, s1, s2	PCM	CTRL
WG Mod	LFO	LFO Mode	Off, (+), (-), A&L	PCM	CTRL
	ENV	P-ENV Mode	Off, (+), (-)	PCM	CTRL
	Bend	Bender Mode	Off, KEY, NOM	PCM	CTRL
TVF (p. 61)					
TVF	Freq	Cutoff Frequency	0 – 100		CTRL
	Reso	Resonance	0 – 30		CTRL
	KF	Keyfollow	-1, -1/2, -1/4, 0, 1, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2		CTRL
	BP	Bias Point/Bias Direction	<A1 – <C7, >A1 – >C7		CTRL
	BLevel	Bias Level	-7 – 7		CTRL

Parameter			Value	Comment	
TVF ENV	Depth	Depth	0 – 100		CTRL
	Velo	Velocity Range	0 – 100		CTRL
	DKF	Depth Keyfollow	0 – 4		CTRL
	TKF	Time Keyfollow	0 – 4		CTRL
TVF ENV Time	T1	Time1	0 – 100		CTRL
	T2	Time2	0 – 100		CTRL
	T3	Time3	0 – 100		CTRL
	T4	Time4	0 – 100		CTRL
	T5	Time5	0 – 100		CTRL
TVF ENV Level	L1	Level1	0 – 100		CTRL
	L2	Level2	0 – 100		CTRL
	L3	Level3	0 – 100		CTRL
	SusL	Sustain Level	0 – 100		CTRL
	EndL	End Level	0, 100		CTRL
TVA (p. 66)					
TVA	Level	Level	0 – 100	PCM	CTRL
	Velo	Velocity Range	-50 – 50	PCM	CTRL
	BP	Bias Point/Bias Direction	<A1 – <C7, >A1 – >C7	PCM	CTRL
	BLevel	Bias Level	-12 – 12	PCM	CTRL
TVA ENV	Velo	Velocity Follow	0 – 4	PCM	CTRL
	TKF	Time Keyfollow	0 – 4	PCM	CTRL
TVA ENV Time	T1	Time1	0 – 100	PCM	CTRL
	T2	Time2	0 – 100	PCM	CTRL
	T3	Time3	0 – 100	PCM	CTRL
	T4	Time4	0 – 100	PCM	CTRL
	T5	Time5	0 – 100	PCM	CTRL
TVA ENV Level	L1	Level1	0 – 100	PCM	CTRL
	L2	Level2	0 – 100	PCM	CTRL
	L3	Level3	0 – 100	PCM	CTRL
	SusL	Sustain Level	0 – 100	PCM	CTRL
	EndL	End Level	0, 100	PCM	CTRL
MOD (p. 69)					
TVF MOD	LFO	LFO Select	+1, -1, +2, -2, +3, -3		CTRL
	LFOD	LFO Depth	0 – 100		CTRL
	After	Aftertouch Range	-7 – 7		CTRL
TVA MOD	LFO	LFO Select	+1, -1, +2, -2, +3, -3	PCM	CTRL
	LFOD	LFO Depth	0 – 100	PCM	CTRL
	After	Aftertouch Range	-7 – 7	PCM	CTRL

System Parameters

Parameter		Value	Comment			
Sound Setting (p. 72)						
Master Tune	Master Tune	427 – 452 Hz				
Sound Character	Sound Character	D-50, V-Synth	VC-1			
Digital Freq	Digital Output Frequency	44.1, 48, 96 kHz	VC-1			
MIDI (p. 73)						
MIDICH	Basic CH	1 – 16				
Control	Control	B.CH, G.CH, MdeOff				
Separate CH	Separate Mode Receive CH	1 – 16				
Prog.C	Program Change Switch	Off, On				
Exclusive	Exclusive Switch	Off, On, P-Dump, TxEdit				
Bank.S	Bank Select Switch	Off, On	VC-1			

Waveform

Oneshot

Number	Display	PCM Name
1	Marmba	Marimba
2	Vibes	Vibraphone
3	Xylo1	Xylophone 1
4	Xylo2	Xylophone 2
5	Log_Bs	Log bass
6	Hammer	Hammer
7	JpnDrm	Japanese Drum
8	Kaimba	Kalimba
9	Pluck	Pluck 1
10	Chink	Chink
11	Agogo	Agogo
12	3angle	Triangle
13	Bells	Bell's
14	Nails	Nail File
15	Pick	Pick
16	Lpiano	Low Piano
17	Mpiano	Mid Piano
18	Hpiano	High Piano
19	Harpsi	Harpsichord
20	Harp	Harp
21	Orgprc	Organ Percussion
22	Steel	Steel Strings
23	Nylon	Nylon Strings
24	Eguit1	Electric Guitar 1
25	Eguit2	Electric Guitar 2
26	Dirt	Dirty Guitar
27	P_Bass	Pick Bass
28	Pop	Pop Bass
29	Thump	Thump
30	Uprite	Upright Bass
31	Clarnt	Clarinet
32	Breath	Breath
33	Steam	Steamer
34	FluteH	High Flute
35	FluteL	Low Flute
36	Guiro	Guiro
37	IndFlt	Indian Flute
38	Harmo	Flute Harmonics
39	Lips1	Lips 1
40	Lips2	Lips 2
41	Trumpt	Trumpet
42	Bones	Trombones
43	Contra	Contrabass
44	Cello	Cello
45	VioBow	Violin bow
46	Violns	Violins
47	Pizz	Pizzicart

Loop

Number	Display	PCM Name
48	Drawbr	Draw bars (Loop)
49	Horgan	High Organ (Loop)
50	Lorgan	Low Organ (Loop)
51	EP_lp2	Electric Piano (Loop 1)
52	EP_lp1	Electric Piano (Loop 2)
53	CLAVlp	Clavi (Loop)
54	HC_lp	Harpsichord (Loop)
55	EB_lp1	Electric Bass (Loop 1)
56	AB_lp	Acoustic Bass (Loop)
57	EB_lp2	Electric Bass (Loop 2)
58	EB_lp3	Electric Bass (Loop 3)
59	EG_lp	Electric Guitar (Loop)
60	CELLlp	CELLlp (Loop)
61	VIOLlp	Violin (Loop)
62	Reedlp	Lead (Loop)
63	SAXip1	Sax (Loop 1)
64	SAXlp2	Sax (Loop 2)
65	Aah_lp	Aah (Loop)
66	Ooh_lp	Ooh (Loop)
67	Manlp1	Male (Loop 1)
68	Spect1	Spectrum 1 (Loop)
69	Spect2	Spectrum 2 (Loop)
70	Spect3	Spectrum 3 (Loop)
71	Spect4	Spectrum 4 (Loop)
72	Spect5	Spectrum 5 (Loop)
73	Spect6	Spectrum 6 (Loop)
74	Spect7	Spectrum 7 (Loop)
75	Manlp2	Male (Loop 2)
76	Noise	Noise (Loop)

Loop (Some of the sounds 1 to 76, are combined and looped.)

Number	Display
77	Loop01
78	Loop02
79	Loop03
80	Loop04
81	Loop05
82	Loop06
83	Loop07
84	Loop08
85	Loop09
86	Loop10
87	Loop11
88	Loop12
89	Loop13
90	Loop14
91	Loop15
92	Loop16
93	Loop17
94	Loop18
95	Loop19
96	Loop20
97	Loop21
98	Loop22
99	Loop23
100	Loop24

Newly Added Waveforms

Number	Display	PCM Name
101	70'EP	EP VC-1
102	Wurly	Wurly VC-1
103	FM EP	FM Electric Piano VC-1
104	M_Box	Music Box VC-1
105	Kalmb2	Kalimba 2 VC-1
106	StlGtr	Steel Guitar VC-1
107	Sitar	Sitar VC-1
108	FM Bs	FM Bass VC-1
109	MtlVox	Metal Voice VC-1
110	Hit	Hit VC-1
111	Sync	Sync VC-1
112	FMMod1	FM Modulation 1 VC-1
113	FMMod2	FM Modulation 2 VC-1
114	Lo3Saw	Low 3 Layered Saw VC-1
115	FatSaw	Fat Saw VC-1
116	FatSqr	Fat Square VC-1
117	FbkOSC	Feedback OSC VC-1
118	Phased	Phased Saw VC-1
119	TronSt	Tron Strings VC-1
120	F_Wine	Fine Wine VC-1
121	Fbkwav	Feedbackwave VC-1
122	AahMin	Aah Voice Minor VC-1
123	VoxChd	Voice Chord VC-1
124	Granu	Granular VC-1
125	Ringy	Ringy VC-1
126	Revrs1	Reverse 1 VC-1
127	Revrs2	Reverse 2 VC-1
128	RevVox	Reversed Voice VC-1

MIDI Implementation

Model: VC-1
Date: January 10, 2005
Version: 1.10

1. Data Transmission

■Channel Voice Messages

●Control Change

❍Bank Select (Controller number 0, 32)

Status	2nd byte	3rd byte
BnH	00H	mmH
BnH	20H	llH
n = MIDI channel number:		0H - FH (ch.1 - 16)
mm, ll = Bank number:		00 00H - 7F 7FH (bank.1 - bank.16384)

* Not transmitted when Bank Select Switch (SYSTEM MIDI) is OFF.
* The Patches corresponding to each Bank Select are as follows.

BANK SELECT MSB	BANK SELECT LSB	PROGRAM NUMBER	BATCH BANK	PATCH NUMBER
087	000	001 - 064	Internal 1	11 - 88
	001	001 - 064	Internal 2	11 - 88
	002	001 - 064	Internal 3	11 - 88
	003	001 - 064	Internal 4	11 - 88
	004	001 - 064	Internal 5	11 - 88
	005	001 - 064	Internal 6	11 - 88
	006	001 - 064	Internal 7	11 - 88
	007	001 - 064	Internal 8	11 - 88
	008	001 - 064	Preset 1	11 - 88
	009	001 - 064	Preset 2	11 - 88
	010	001 - 064	Preset 3	11 - 88
	011	001 - 064	Preset 4	11 - 88
	012	001 - 064	Preset 5	11 - 88
	013	001 - 064	Preset 6	11 - 88

* The transmitted value of MSB can be changed by Tx Bank Select (Patch MIDI).
* In that case the transmitted value of LSB is always 0.

❍Portamento Switch (Controller number 65)

Status	2nd byte	3rd byte
BnH	41H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Control value:		00H - 7FH (0 - 127) 0-63 = OFF, 64-127 = ON

●Program Change

Status	2nd byte	
CnH	ppH	
n = MIDI channel number:		0H - FH (ch.1 - 16)
pp = Program number:		00H - 3FH (prog.1 - prog.64)

* Not transmitted when Program Change Switch (SYSTEM MIDI) is OFF.

■System Realtime Messages

●Active Sensing

Status
FEH

* This message is transmitted at intervals of approximately 250 msec.

●System Exclusive Messages

Status	
F0H	:System Exclusive
F7H	:EOX (End Of Exclusive)

Transmitted in the following three cases.

1. When Operating Bulk-Dump
2. If Exclusive of System MIDI is "P-Dump," this unit transmits all parameters in the patch when the patch is changed.
3. If Exclusive of System MIDI is "TxEdit," this unit transmits the parameter when the parameter is edited.

Refer to Section 3 to see details.

2. Receive data

■Channel Voice Messages

●Note off

Status	2nd byte	3rd byte
8nH	kkH	vvH
9nH	kkH	00H
n = MIDI channel number:		0H - FH (ch.1 - 16)
kk = note number:		00H - 7FH (0 - 127)
vv = note off velocity:		00H - 7FH (0 - 127)

●Note on

Status	2nd byte	3rd byte
9nH	kkH	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
kk = note number:		00H - 7FH (0 - 127)
vv = note on velocity:		01H - 7FH (1 - 127)

●Control Change

m	Bank Select (Controller number 0, 32)	
Status	2nd byte	3rd byte
BnH	00H	mmH
BnH	20H	llH
n = MIDI channel number:		0H - FH (ch.1 - 16)
mm, ll = Bank number:		00 00H - 7F 7FH (bank.1 - bank.16384)

* Not received when the Bank Select Switch (SYSTEM MIDI) is OFF.
* The Patches corresponding to each Bank Select are as follows.

BANK SELECT MSB	BANK SELECT LSB	PROGRAM NUMBER	BATCH BANK	PATCH NUMBER
087	000	001 - 064	Internal 1	11 - 88
	001	001 - 064	Internal 2	11 - 88
	002	001 - 064	Internal 3	11 - 88
	003	001 - 064	Internal 4	11 - 88
	004	001 - 064	Internal 5	11 - 88
	005	001 - 064	Internal 6	11 - 88
	006	001 - 064	Internal 7	11 - 88
	007	001 - 064	Internal 8	11 - 88
	008	001 - 064	Preset 1	11 - 88
	009	001 - 064	Preset 2	11 - 88
	010	001 - 064	Preset 3	11 - 88
	011	001 - 064	Preset 4	11 - 88
	012	001 - 064	Preset 5	11 - 88
	013	001 - 064	Preset 6	11 - 88

* The MSB value to be transmitted can be set individually for
* each patch using Tx Bank Select (PATCH MIDI).
* In this case, "0" is always output for the LSB.

❍Modulation (Controller number 1)

Status	2nd byte	3rd byte
BnH	01H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Modulation depth:		00H - 7FH (0 - 127)

❍Portamento Time (Controller number 5)

Status	2nd byte	3rd byte
BnH	05H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Portamento Time:		00H - 7FH (0 - 127)

❍Data Entry (Controller number 6, 38)

Status	2nd byte	3rd byte
BnH	06H	mmH
BnH	26H	llH

n = MIDI channel number: 0H - FH (ch.1 - 16)
mm, ll = the value of the parameter specified by RPN/NRPN
mm = MSB, ll = LSB

❍Volume (Controller number 7)

Status	2nd byte	3rd byte
BnH	07H	vvH
n = MIDI channel number:0H - FH (ch.1 - 16)		
vv = Volume:	00H - 7FH (0 - 127)	

❍Hold 1 (Controller number 64)

Status	2nd byte	3rd byte
BnH	40H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Control value:		00H - 7FH (0 - 127) 0-63 = OFF, 64-127 = ON

❍Portamento Switch (Controller number 65)

Status	2nd byte	3rd byte
BnH	41H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Control value:		00H - 7FH (0 - 127) 0 - 63 = OFF, 64 - 127 = ON

❍RPN MSB/LSB (Controller number 100, 101)

Status	2nd byte	3rd byte
BnH	65H	mmH
BnH	64H	llH

n = MIDI channel number: 0H - FH (ch.1 - 16)
mm = upper byte (MSB) of parameter number specified by RPN
ll = lower byte (LSB) of parameter number specified by RPN

<<< RPN >>>

Control Changes include RPN (Registered Parameter Numbers), which are extended.
When using RPNs, first RPN (Controller numbers 100 and 101; they can be sent in any order) should be sent in order to select the parameter, then Data Entry (Controller numbers 6 and 38) should be sent to set the value.

This device receives the following RPNs.

RPN	Data entry	
MSB, LSB	MSB, LSB	Notes
00H, 00H	mmH, llH	Pitch Bender Range mm: 00H - 0CH (0 - 12 semitones) ll: ignored (processed as 00H) Up to 1 octave can be specified in semitone steps.
00H, 01H	mmH, llH	Fine Tuning mm, ll: 00 00H - 40 00H - 7F 7FH (-50 - 0 - +50 cent)

●Program Change

Status	2nd byte	
CnH	ppH	
n = MIDI channel number:		0H - FH (ch.1 - 16)
pp = Program number:		00H - 3FH (prog.1 - prog.64)

* Not received when the Program Change Switch (SYSTEM MIDI) is OFF.

●Channel Aftertouch

Status	2nd byte	
DnH	vvH	
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Aftertouch Value:		00H - 7FH (0 - 127)

●Pitch Bender Change

Status	2nd byte	3rd byte
EnH	llH	mmH
n = MIDI channel number:		0H - FH (ch.1 - 16)
mm, ll = Pitch Bender value:		00 00H - 40 00H - 7F 7FH (-8192 - 0 - +8191)

■Channel Mode Messages

●All Sounds Off (Controller number 120)

Status	2nd byte	3rd byte
BnH	78H	00H

n = MIDI channel number: 0H - FH (ch.1 - 16)

* When this message is received, all notes currently sounding on the corresponding channel will be turned off.

●Reset All Controllers (Controller number 121)

Status	2nd byte	3rd byte
BnH	79H	00H

n = MIDI channel number: 0H - FH (ch.1 - 16)

* When this message is received, all controllers on the corresponding channel will be set to their reset values.

■MONO (Controller number 126)

Status	2nd byte	3rd byte
BnH	7EH	mmH
n = MIDI channel number:		0H - FH (ch.1 - 16)
mm = mono number:		00H - 10H (0 - 16)

MONO mode, each message is recognized on the channel shown below.

Message	Control in MIDI function	
	B.CH	G.CH
Note on/off	individual	
Control Change	basic	Global
Mode Message	basic	Global
Program Change	basic	Global
Aftertouch	basic	Global
Pitch Bender Change	individual	
Exclusive	basic	Global

* Global channel is equal to "basic channel - 1."
And if basic channel is 1, global channel is 16.

●POLY (Controller number 127)

Status	2nd byte	3rd byte
BnH	7FH	00H

n = MIDI channel number: 0H - FH (ch.1 - 16)

* These Mode Messages (2nd byte = 123-127) are also recognized as All Sounds Off and Reset All Controllers.

■System Realtime Message

●Active Sensing

Status
FEH

* When Active Sensing is received, the unit will begin monitoring the intervals of all further messages. While monitoring, if the interval between messages exceeds 300 ms, the same processing will be carried out as when All Notes Off are received, and message interval monitoring will be halted.

●System Exclusive Message

Status	
F0H	:System Exclusive
F7H	:EOX (End Of Exclusive)

Exclusive message can change either each parameter individually or all parameters, of a patch or tone.
Refer to Section 3 to see details.

* Not received when the Exclusive Switch (SYSTEM MIDI) is OFF.

3. Exclusive Communication

■ 3.1 Message structure

All exclusive communications are based on following structure (Roland Exclusive Format Type IV).

	Byte	Description	
a	F0H	Exclusive status	
b	41H	Roland ID #	
c	dev	Device-ID # = MIDI basic channel -1	
d	14H	Model-ID # (D-50)	
e	xxH	Command-ID #	
[f	aaH	Address MSB] [ ] depend on Command-ID	
[g	bbH	Address]	
[h	ccH	Address LSB]	
[i	ddH	Data	]
[	:		]
j	sum	Checksum	
k	F7H	EOX (End Of Exclusive)	

Summed value of the all bytes between Command-ID and EOX (f-j) must be 00H (7 bits). It doesn't include Command-ID and EOX.

■ 3.2 Address mapping

●Temporary area

Address		Description
[00-00-00]	Upper Partial-1	temp-area
[00-00-40]	Upper Partial-2	temp-area
[00-01-00]	Upper Common	temp-area
[00-01-40]	Lower Partial-1	temp-area
[00-02-00]	Lower Partial-2	temp-area
[00-02-40]	Lower Common	temp-area
[00-03-00]	Patch	temp-area

●Work area

You can transmit/receive data in the currently selected patch bank using the following address.

Address	Description
[02-00-00]	Patch Memory 1-1
[02-03-40]	Patch Memory 1-2
:	:
[03-5C-40]	Patch Memory 8-8
[03-60-00]	Reverb Data 17
[03-62-78]	Reverb Data 18
:	:
[04-0C-08]	Reverb Data 32

Each patch memory consists of the followings.

Offset	Description
[00-00-00]	Upper Partial-1
[00-00-40]	Upper Partial-2
[00-01-00]	Upper Common
[00-01-40]	Lower Partial-1
[00-02-00]	Lower Partial-2
[00-02-40]	Lower Common
[00-03-00]	Patch

■ 3.3 Partial Parameter

Offset Address	Description				
00H	0vvv vvvv	WG Pitch	Coarse	0-72	C1, C#1...C7
01H	0vvv vvvv	WG Pitch	Fine	0-100	-50..0..+50
02H	0vvv vvvv	WG Pitch	Keyfollow	0-16	-1, -1/2, -1/4, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2, s1, s2
03H	0vvv vvvv	WG Modulation	LFO Mode	0-3	Off, (+), (-), A&L
04H	0vvv vvvv	WG Modulation	P-ENV Mode	0-2	Off, (+), (-)
05H	0vvv vvvv	WG Modulation	Bender Mode	0-2	Off, Keyfollow, Normal
06H	0vvv vvvv	WG Waveform	Waveform	0-1	Square, Sawtooth
07H	0vvv vvvv	WG Waveform	PCM Wave No.	0-127	1..128
08H	0vvv vvvv	WG Pulse Width	Pulse Width	0-100	0..100
09H	0vvv vvvv	WG Pulse Width	Velocity Range	0-14	-7..0..+7
0AH	0vvv vvvv	WG Pulse Width	LFO Select	0-5	+1, -1, +2, -2, +3, -3
0BH	0vvv vvvv	WG Pulse Width	LFO Depth	0-100	0..100
0CH	0vvv vvvv	WG Pulse Width	Aftertouch Range	0-14	-7..0..+7
0DH	0vvv vvvv	TVF	Cutoff Frequency	0-100	0..100
0EH	0vvv vvvv	TVF	Resonance	0-30	0..30
0FH	0vvv vvvv	TVF	Keyfollow	0-14	-1, -1/2, -1/4, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2
10H	0vvv vvvv	TVF	Bias Point/Bias Direction	0-63,64-127	<A1...<C7, >A1...>C7
11H	0vvv vvvv	TVF	Bias Level	0-14	-7..0..+7
12H	0vvv vvvv	TVF ENV	Depth	0-100	0..100
13H	0vvv vvvv	TVF ENV	Velocity Range	0-100	0..100
14H	0vvv vvvv	TVF ENV	Depth Keyfollow	0-4	0..4
15H	0vvv vvvv	TVF ENV	Time Keyfollow	0-4	0..4
16H	0vvv vvvv	TVF ENV Time	T1	0-100	0..100
17H	0vvv vvvv	TVF ENV Time	T2	0-100	0..100
18H	0vvv vvvv	TVF ENV Time	T3	0-100	0..100
19H	0vvv vvvv	TVF ENV Time	T4	0-100	0..100
1AH	0vvv vvvv	TVF ENV Time	T5	0-100	0..100
1BH	0vvv vvvv	TVF ENV Level	L1	0-100	0..100
1CH	0vvv vvvv	TVF ENV Level	L2	0-100	0..100
1DH	0vvv vvvv	TVF ENV Level	L3	0-100	0..100
1EH	0vvv vvvv	TVF ENV Level	Sustain Level	0-100	0..100
1FH	0vvv vvvv	TVF ENV Level	End Level	0-1	0, 100
20H	0vvv vvvv	TVF Modulation	LFO Select	0-5	+1, -1, +2, -2, +3, -3
21H	0vvv vvvv	TVF Modulation	LFO Depth	0-100	0..100
22H	0vvv vvvv	TVF Modulation	Aftertouch Range	0-14	-7..0..+7
23H	0vvv vvvv	TVA	Level	0-100	0..100
24H	0vvv vvvv	TVA	Velocity Range	0-100	-50..0..+50
25H	0vvv vvvv	TVA	Bias Point/Bias Direction	0-63,64-127	<A1...<C7, >A1...>C7
26H	0vvv vvvv	TVA	Bias Level	0-12	-12..0
27H	0vvv vvvv	TVA ENV Time	T1	0-100	0..100
28H	0vvv vvvv	TVA ENV Time	T2	0-100	0..100
29H	0vvv vvvv	TVA ENV Time	T3	0-100	0..100
2AH	0vvv vvvv	TVA ENV Time	T4	0-100	0..100
2BH	0vvv vvvv	TVA ENV Time	T5	0-100	0..100
2CH	0vvv vvvv	TVA ENV Level	L1	0-100	0..100
2DH	0vvv vvvv	TVA ENV Level	L2	0-100	0..100
2EH	0vvv vvvv	TVA ENV Level	L3	0-100	0..100
2FH	0vvv vvvv	TVA ENV Level	Sustain Level	0-100	0..100
30H	0vvv vvvv	TVA ENV Level	End Level	0-1	0, 100
31H	0vvv vvvv	TVA ENV	Velocity Follow	0-4	0..4
32H	0vvv vvvv	TVA ENV	Time Keyfollow	0-4	0..4
33H	0vvv vvvv	TVA Modulation	LFO Select	0-5	+1, -1, +2, -2, +3, -3
34H	0vvv vvvv	TVA Modulation	LFO Depth	0-100	0..100
35H	0vvv vvvv	TVA Modulation	Aftertouch Range	0-14	-7..0..+7
36H	0vvv vvvv	Extension		0-127	
:	:	:	:	:	
3FH	0vvv vvvv	Extension		0-127	

■ 3.4 Common Parameter

Offset Address	Description				
00H	0vvv vvvv	Tone Name	1	0-63	' ','A'-'Z','a'-'z','1'-'9','0','-'
:					
:					
09H	0vvv vvvv	Tone Name	10	0-63	
0AH	0vvv vvvv	Structure	Structure	0-6	1..7
0BH	0vvv vvvv	P-ENV Edit	Velocity Range	0-2	0..2
0CH	0vvv vvvv	P-ENV Edit	Time Keyfollow	0-4	0..4
0DH	0vvv vvvv	P-ENV Time	T1	0-50	0..50
0EH	0vvv vvvv	P-ENV Time	T2	0-50	0..50
0FH	0vvv vvvv	P-ENV Time	T3	0-50	0..50
10H	0vvv vvvv	P-ENV Time	T4	0-50	0..50
11H	0vvv vvvv	P-ENV Level	L0	0-100	-50..0..+50
12H	0vvv vvvv	P-ENV Level	L1	0-100	-50..0..+50
13H	0vvv vvvv	P-ENV Level	L2	0-100	-50..0..+50
14H	0vvv vvvv	P-ENV	Sustain Level	0-100	-50..0..+50
15H	0vvv vvvv	P-ENV	End Level	0-100	-50..0..+50
16H	0vvv vvvv	Pitch Mod Edit	LFO Depth	0-100	0..100
17H	0vvv vvvv	Pitch Mod Edit	Pitch Lever Modulation	0-100	0..100
18H	0vvv vvvv	Pitch Mod Edit	Pitch Aftertouch Modulation	0-100	0..100
19H	0vvv vvvv	LFO-1	Waveform	0-3	Triangle, Sawtooth, Square, Random
1AH	0vvv vvvv	LFO-1	Rate	0-100	0..100
1BH	0vvv vvvv	LFO-1	Delay Time	0-100	0..100
1CH	0vvv vvvv	LFO-1	Sync.	0-2	Off, On, Key
1DH	0vvv vvvv	LFO-2	Waveform	0-3	Triangle, Sawtooth, Square, Random
1EH	0vvv vvvv	LFO-2	Rate	0-100	0..100
1FH	0vvv vvvv	LFO-2	Delay Time	0-100	0..100
20H	0vvv vvvv	LFO-2	Sync.	0-1	Off, On
21H	0vvv vvvv	LFO-3	Waveform	0-3	Triangle, Sawtooth, Square, Random
22H	0vvv vvvv	LFO-3	Rate	0-100	0..100
23H	0vvv vvvv	LFO-3	Delay Time	0-100	0..100
24H	0vvv vvvv	LFO-3	Sync.	0-1	Off, On
25H	0vvv vvvv	EQ Edit	Low Frequency	0-15	63, 75, 88, 105, 125, 150, 175, 210, 250, 300, 350, 420, 500, 600, 700, 840
26H	0vvv vvvv	EQ Edit	Low Gain	0-24	-12..0..+12
27H	0vvv vvvv	EQ Edit	High Frequency	0-21	250, 300, 350, 420, 500, 600, 700, 840, 1.0, 1.2, 1.4, 1.7, 2.0, 2.4, 2.8, 3.4, 4.0, 4.8, 5.7, 6.7, 8.0, 9.5
28H	0vvv vvvv	EQ Edit	High Q	0-8	0.3, 0.5, 0.7, 1.0, 1.4, 2.0, 3.0, 4.2, 6.0
29H	0vvv vvvv	EQ Edit	High Gain	0-24	-12..0..+12
2AH	0vvv vvvv	Chorus Edit	Chorus Type	0-7	1..8
2BH	0vvv vvvv	Chorus Edit	Chorus Rate	0-100	0..100
2CH	0vvv vvvv	Chorus Edit	Chorus Depth	0-100	0..100
2DH	0vvv vvvv	Chorus Edit	Chorus Balance	0-100	0..100
2EH	0vvv vvvv	Partial Mute		0-3	00, 01, 10, 11 (*1)
2FH	0vvv vvvv	Partial Balance		0-100	0..100
30H	0vvv vvvv	Extension		0-127	
31H	0vvv vvvv	Extension		0-127	
32H	0vvv vvvv	Extension		0-127	
33H	0vvv vvvv	Extension		0-127	
34H	0vvv vvvv	Extension		0-127	
35H	0vvv vvvv	Extension		0-127	
36H	0vvv vvvv	Extension		0-127	
37H	0vvv vvvv	Extension		0-127	
38H	0vvv vvvv	Extension		0-127	
39H	0vvv vvvv	Extension		0-127	
3AH	0vvv vvvv	Extension		0-127	
3BH	0vvv vvvv	Extension		0-127	
3CH	0vvv vvvv	Extension		0-127	
3DH	0vvv vvvv	Extension		0-127	
3EH	0vvv vvvv	Extension		0-127	
3FH	0vvv vvvv	Extension		0-127	

■ 3.5 Patch Parameter

Offset Address	Description				
00H	0vvv vvvv	Patch Name	1	0-63	‘,’A’-’Z’,’a’-’z’,’1’-’9’,’0’,’-’
:	:	:	:	:	:
:	:	:	:	:	:
11H	0vvv vvvv	Patch Name	18	0-63	:
12H	0vvv vvvv	Key Mode		0-8	Whole, Dual, Split, Separate, Whole-S, Dual-S, Split-US, Split-LS, Separate-S
13H	0vvv vvvv	Split Point		0-60	C2, C#2...C7
14H	0vvv vvvv	Portamento Mode		0-2	U, L, UL
15H	0vvv vvvv	Hold Mode		0-2	U, L, UL
16H	0vvv vvvv	U-Tone Key Shift		0-48	-24..0..+24
17H	0vvv vvvv	L-Tone Key Shift		0-48	-24..0..+24
18H	0vvv vvvv	U-Tone Fine Tune		0-100	-50..0..+50
19H	0vvv vvvv	L-Tone Fine Tune		0-100	-50..0..+50
1AH	0vvv vvvv	Bender Range		0-12	0..12
1BH	0vvv vvvv	Aftertouch (Pitch Bender)		0-24	-12..0..+12
1CH	0vvv vvvv	Portamento Time		0-100	0..100
1DH	0vvv vvvv	Output Mode		0-3	1..4
1EH	0vvv vvvv	Reverb Type		0-31	1..32 (17..32 Change Type)
1FH	0vvv vvvv	Reverb Balance		0-100	0..100
20H	0vvv vvvv	Total Volume		0-100	0..100
21H	0vvv vvvv	Tone Balance		0-100	0..100
22H	0vvv vvvv	Chase Mode		0-2	UL, ULL, ULU
23H	0vvv vvvv	Chase Level		0-100	0..100
24H	0vvv vvvv	Chase Time		0-100	0..100
25H	0vvv vvvv	MIDI	Transmit CH	0-16	Basic, 1..16
26H	0vvv vvvv	MIDI	Separate Mode Receive CH	0-16	Off, 1..16
27H	0vvv vvvv	MIDI	Transmit Program Change	0-100	Off, 1..100
28H	0vvv vvvv	Chase Switch		0-1	Off, On
29H	0vvv vvvv	Portamento Switch		0-1	Off, On
2AH	0vvv vvvv	Separate Switch		0-1	Off, On
2BH	0vvv vvvv	MIDI	Transmit Bank Select	0-100	Off, 0..99
2CH	0vvv vvvv	Tone Select		0-3	00, 01, 10, 11 (*2)
2DH	0vvv vvvv	Partial Select		0-15	0000, 0001, 0010, 0011..1111 (*3)
2EH	0vvv vvvv	Extension		0-127	
2FH	0vvv vvvv	Extension		0-127	
30H	0vvv vvvv	Extension		0-127	
31H	0vvv vvvv	Extension		0-127	
32H	0vvv vvvv	Extension		0-127	
33H	0vvv vvvv	Extension		0-127	
34H	0vvv vvvv	Extension		0-127	
35H	0vvv vvvv	Extension		0-127	
36H	0vvv vvvv	Extension		0-127	
37H	0vvv vvvv	Extension		0-127	
38H	0vvv vvvv	Extension		0-127	
39H	0vvv vvvv	Extension		0-127	
3AH	0vvv vvvv	Extension		0-127	
3BH	0vvv vvvv	Extension		0-127	
3CH	0vvv vvvv	Extension		0-127	
3DH	0vvv vvvv	Extension		0-127	
3EH	0vvv vvvv	Extension		0-127	
3FH	0vvv vvvv	Extension		0-127	

■ 3.6 Reverb Block

Offset Address	Description				
00 00H	0000 aaaa	Reverb Data	1		
00 01H	0000 bbbb	aaaa bbbb		0-255	
00 02H	0000 aaaa	Reverb Data	2		
00 03H	0000 bbbb	aaaa bbbb		0-255	
:					
:					
02 76H	0000 aaaa	Reverb Data	188		
02 77H	0000 bbbb	aaaa bbbb		0-255	

376 bytes of data is mutually related, and each one has no meaning individually.

* 1: table 1 (Common Parameter - Partial Mute)

BIN	DEC	Description
00B	0	Partial2 Off, Partial1 Off
01B	1	Partial2 Off, Partial1 On
10B	2	Partial2 On, Partial1 Off
11B	3	Partial2 On, Partial1 On

* 2: table 2 (Patch Parameter - Tone Select)

BIN	DEC	Description
00B	0	Upper Off, Lower Off
01B	1	Upper Off, Lower On
10B	2	Upper On, Lower Off
11B	3	Upper On, Lower On

* 3: table 3 (Patch Parameter - Partial Select)

BIN	DEC	Description
0000B	0	Upper Partial2 Off, Upper Partial1 Off, Lower Partial2 Off,Lower Partial1 Off
0001B	1	Upper Partial2 Off, Upper Partial1 Off, Lower Partial2 Off,Lower Partial1 On
0010B	2	Upper Partial2 Off, Upper Partial1 Off, Lower Partial2 On,Lower Partial1 Off
0011B	3	Upper Partial2 Off, Upper Partial1 Off, Lower Partial2 On,Lower Partial1 On
0100B	4	Upper Partial2 Off, Upper Partial1 On, Lower Partial2 Off,Lower Partial1 Off
0101B	5	Upper Partial2 Off, Upper Partial1 On, Lower Partial2 Off,Lower Partial1 On
0110B	6	Upper Partial2 Off, Upper Partial1 On, Lower Partial2 On,Lower Partial1 Off
0111B	7	Upper Partial2 Off, Upper Partial1 On, Lower Partial2 On,Lower Partial1 On
1000B	8	Upper Partial2 On, Upper Partial1 Off, Lower Partial2 Off,Lower Partial1 Off
1001B	9	Upper Partial2 On, Upper Partial1 Off, Lower Partial2 Off,Lower Partial1 On
1010B	10	Upper Partial2 On, Upper Partial1 Off, Lower Partial2 On,Lower Partial1 Off
1011B	11	Upper Partial2 On, Upper Partial1 Off, Lower Partial2 On,Lower Partial1 On
1100B	12	Upper Partial2 On, Upper Partial1 On, Lower Partial2 Off,Lower Partial1 Off
1101B	13	Upper Partial2 On, Upper Partial1 On, Lower Partial2 Off,Lower Partial1 On
1110B	14	Upper Partial2 On, Upper Partial1 On, Lower Partial2 On,Lower Partial1 Off
1111B	15	Upper Partial2 On, Upper Partial1 On, Lower Partial2 On,Lower Partial1 On

4. Supplementary Material

■ Decimal and Hexadecimal Table

(An "H" is appended to the end of numbers in hexadecimal notation.)

In MIDI documentation, data values and addresses/sizes of Exclusive messages, etc. are expressed as hexadecimal values for each 7 bits.

The following table shows how these correspond to decimal numbers.

D	H	D	H	D	H	D	H
0	00H	32	20H	64	40H	96	60H
1	01H	33	21H	65	41H	97	61H
2	02H	34	22H	66	42H	98	62H
3	03H	35	23H	67	43H	99	63H
4	04H	36	24H	68	44H	100	64H
5	05H	37	25H	69	45H	101	65H
6	06H	38	26H	70	46H	102	66H
7	07H	39	27H	71	47H	103	67H
8	08H	40	28H	72	48H	104	68H
9	09H	41	29H	73	49H	105	69H
10	0AH	42	2AH	74	4AH	106	6AH
11	0BH	43	2BH	75	4BH	107	6BH
12	0CH	44	2CH	76	4CH	108	6CH
13	0DH	45	2DH	77	4DH	109	6DH
14	0EH	46	2EH	78	4EH	110	6EH
15	0FH	47	2FH	79	4FH	111	6FH
16	10H	48	30H	80	50H	112	70H
17	11H	49	31H	81	51H	113	71H
18	12H	50	32H	82	52H	114	72H
19	13H	51	33H	83	53H	115	73H
20	14H	52	34H	84	54H	116	74H
21	15H	53	35H	85	55H	117	75H
22	16H	54	36H	86	56H	118	76H
23	17H	55	37H	87	57H	119	77H
24	18H	56	38H	88	58H	120	78H
25	19H	57	39H	89	59H	121	79H
26	1AH	58	3AH	90	5AH	122	7AH
27	1BH	59	3BH	91	5BH	123	7BH
28	1CH	60	3CH	92	5CH	124	7CH
29	1DH	61	3DH	93	5DH	125	7DH
30	1EH	62	3EH	94	5EH	126	7EH
31	1FH	63	3FH	95	5FH	127	7FH

D: decimal, **H**: hexadecimal

* Decimal values such as MIDI channel, bank select, and program change are listed as one greater than the values given in the above table.
* A 7-bit byte can express data in the range of 128 steps. For data where greater precision is required, we must use two or more bytes. For example, two hexadecimal numbers aa bbH expressing two 7-bit bytes would indicate a value of aa x 128+bb.
* In the case of values which have a +/- sign, 00H = -64, 40H = +/-0, and 7FH = +63, so that the decimal expression would be 64 less than the value given in the above chart. In the case of two types, 00 00H = -8192, 40 00H = +/-0, and 7F 7FH = +8191. For example, if aa bbH were expressed as decimal, this would be aa bbH - 40 00H = aa x 128+bb - 64 x 128.
* Data marked "Use nibbled data" is expressed in hexadecimal in 4-bit units. A value expressed as a 2-byte nibble 0a 0bH has the value of a x 16+b.

<Example1> What is the decimal expression of 5AH?

From the preceding table, 5AH = 90

<Example2> What is the decimal expression of the value 12 34H given as hexadecimal for each 7 bits?

From the preceding table, since 12H = 18 and 34H = 52

18 x 128+52 = 2356

<Example3> What is the decimal expression of the nibbled value 0A 03 09 0D?

From the preceding table, since 0AH = 10, 03H = 3, 09H = 9, 0DH = 13

((10 x 16+3) x 16+9) x 16+13 = 41885

<Example4> What is the nibbled expression of the decimal value 1258?

```
16 ) 1258
16 )   78 ...10
16 )    4 ...14
         0 ... 4
```

Since from the preceding table, 0 = 00H, 4 = 04H, 14 = 0EH, 10 = 0AH, the result is: 00 04 0E 0AH.

MUSIC SOFTWARE

Model: VC-1

MIDI Implementation Chart

Date : January 10, 2005

Version : 1.10

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default	1–16	1–16	
	Changed	1–16	1–16	
Mode	Default Messages	Mode 3 Omni Off, Poly	Mode 3 Mono, Poly, Omni Off	
	Altered	**********	Mode 1 → Mode 3 Mode 2 → Mode 4	
Note Number :	True Voice	X **********	0–127 12–108	
Velocity	Note ON	X	O	
	Note OFF	X	X	
Aftertouch	Key's	X	X	
	Ch's	X	O	
Pitch Bend		O	O	
Control Change	0, 32	O * 1	O * 1	Bank Select
	1	X	O	Modelation
	5	X	O	Portamento Time
	6, 38	X	O * 2	Data Entry
	7	X	O	Volume
	64	X	O	Hold 1
	65	O	O	Portamento Switch
	100, 101	X	O * 2	RPN LSB, MSB
Program Change	: True Number	O *1 **********	O * 1 0–63	Program Number 1–64
System Exclusive		O *1	O * 1	
System Common	: Song Pos	X	X	
	: Song Sel	X	X	
	: Tune	X	X	
System Real Time	: Clock	X	X	
	: Command	X	X	
Aux Message	: All Sound Off	X	O	
	: Reset all controllers	X	O	
	: Local ON/OFF	X	X	
	: All Notes OFF	X	X	
	: Active Sensing	O	O	
	: System Reset	X	X	
Notes		* 1 Can be set to O or X manually, and memorized. * 2 RPN = Registered parameter control number. RPN#0: Pitch bend sensitivity RPN#1: Master fine tuning Parameter values are given by Fata Entry.		

Mode 1 : OMNI ON, POLY Mode 2 : OMNI ON, MONO O : Yes

Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF, MONO X : No

Specifications

VC-1: V-Card D-50

Sound Generator

D-50 Compatible LA (Linear Arithmetic) Synthesis

Polyphony

16 voices

Waveforms

Synthesizer: 2
PCM: 128

Internal (User) Memory

Banks: 8
Patches: 512

Preset Memory

Banks: 6
Patches: 384

* *In the interest of product improvement, the specifications and/or contents of this unit are subject to change without prior notice.*

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